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Metaverse: A New Universe

Legal, Regulatory and Tax Issues

July 2022

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Metaverse: A New Universe

Legal, Regulatory and Tax Issues

July 2022



Asia-Pacific
Most Innovative Law Firm: 2016
Second Most Innovative Firm: 2019
Most Innovative Indian Law Firm: 2019, 2017, 2016, 2015, 2014



Asia Pacific
Band 1 for Employment, Lifesciences, Tax, TMT:
2021, 2020, 2019, 2018, 2017, 2016, 2015



Tier 1 for Private Equity, Project Development: Telecommunications Networks:
2020, 2019, 2018, 2017, 2014
Deal of the Year: Private Equity, 2020



Asia-Pacific
Tier 1 for Dispute, Tax, Investment Funds, Labour & Employment, TMT, Corporate M&A:
2021, 2020, 2019, 2018, 2017, 2016, 2015, 2014, 2013, 2012



Asia-Pacific
Tier 1 for Government & Regulatory, Tax: 2020, 2019, 2018



Ranked
'Outstanding' for Technology, Labour & Employment, Private Equity, Regulatory, Tax:
2021, 2020, 2019



Global Thought Leader — Vikram Shroff
Thought Leaders, India — Nishith Desai, Vaibhav Parikh, Dr. Milind Antani
Arbitration Guide, 2021 — Vyapak Desai, Sahil Kanuga



Fastest growing M&A Law Firm: 2018



Asia Mena Counsel: In-House Community Firms Survey:
Only Indian Firm for Life Science Practice Sector: 2018

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Contact

For any help or assistance please email us on concierge@nishithdesai.com or visit us at www.nishithdesai.com.

Acknowledgements

Raashi Vaishya

raashi.vaishya@nishithdesai.com

Ashish Sodhani

ashish.sodhani@nishithdesai.com

Varsha Rajesh

varsha.rajesh@nishithdesai.com

Aarushi Jain

aarushi.jain@nishithdesai.com

Aniruddha Majumdar

aniruddha.majumdar@nishithdesai.com

Huzefa Tavawalla

huzefa.tavawalla@nishithdesai.com

Ipsita Agarwalla

ipsita.agarwalla@nishithdesai.com

Gowree Gokhale

gowree.gokhale@nishithdesai.com

Aparna Gaur

aparna.gaur@nishithdesai.com

Avani Airan.(Paralegal)

avani.airan@nishithdesai.com

Indrajeet Sircar

indrajeet.sircar@nishithdesai.com

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Introduction

The 21st century saw a meteoric rise in the use of the internet. The earliest version of the wide web, commonly referred to as Web 1.0 or “read-only Web”¹, with static web pages and a design made the internet accessible and readable. The current version of the Web, or Web 2.0 fosters convenience of use, interaction and device compatibility. Web 2.0, therefore, is user-focused and is primarily responsible for the inception of social media interactions, online communities and other digital collaborations, facilitated largely by centralized platforms.

The internet experience had to be logically taken to the next level of immersion which is now prominently known as Web 3.0. It is a more humanized version of internet applications and will provide spatial experiences comparable to those existing in the real world, by enabling decentralized interactions between users. With the enhancement of immersive experiences in the future, Web 3.0 may eventually blur the boundaries between the digital and physical worlds. This will be achieved through the confluence of enabling technologies such as, *inter alia*, Augmented Reality (“AR”), Virtual Reality (“VR”), Extended Reality (“XR”) Artificial Intelligence (“AI”), Internet of Things (“IoT”), advanced networking, i.e. 5G, blockchains and machine learning, etc. While Web 3.0 deals with sculpting the internet of the future, the Metaverse is all about how we will experience it.

As the world transitions into the new digital era, it becomes significant to understand the concept of the Metaverse. Some understand Metaverse to be ‘a global network of spatially organized, predominantly 3D content’.² It has also been understood more simply as any simulated digital environment experienced through AR or VR, that embodies concepts from social media and blockchain, to enable social interactions similar to the real world.³

The term ‘Metaverse’ was first coined in the Neil Steven novel, ‘Snow Crash’ in 1992, where it referred to a virtual escape for the characters to explore outside the grim reality.⁴ The technology and infrastructure to bring the Metaverse to life developed steadily with Sensorama, the first VR machine in 1956;⁵ Thereafter, Second Life, the first project resembling the Metaverse;⁶ followed by multiple other platforms including AR / VR offerings broadened the Metaverse scope. More recently, Roblox the gaming platform along with other Metaverses such as Decentraland⁷, Sandbox⁸, Axie Infinity⁹, Zepeto¹⁰, Space Somnium¹¹, etc. have only enhanced the penetration of such technologies. In addition, the experiences only grew with advancement in technologies, sensors, intuitive headsets and haptics, thus broadening the applications from gaming and entertainment to tourism, healthcare, education, and social commerce, among others. Sophisticated products and services such as Decentraland for virtual gatherings and entertainment, Upland for trading virtual real estate, and Sandbox for NFT based open-world gaming are already widely in use.

1 See <https://indianexpress.com/article/explained/everyday-explainers/what-is-web-5-0-blockchain-powered-digital-network-twitter-ex-ceo-7967663/> (Last visited on July 4, 2022).

2 See <https://medium.com/meta-verses/the-seven-rules-of-the-metaverse-7d4e06fa864c> (Last visited on July 4, 2022).

3 See <https://economictimes.indiatimes.com/markets/cryptocurrency/how-the-metaverse-future-may-look-like-in-2030/articleshow/91175337.cms?from=mdr> (Last visited on July 4, 2022).

4 See <https://www.businessinsider.in/tech/news/the-creator-of-the-term-Metaverse-wants-people-to-know-he-has-nothing-to-do-with-facebooks-meta-plans/articleshow/87382659.cms> (Last visited on July 4, 2022).

5 See <https://www.forbes.com/sites/bernardmarr/2022/03/21/a-short-history-of-the-Metaverse/?sh=6556c5de5968>

6 See <https://www.bbc.com/news/technology-59180273> (Last visited on July 4, 2022).

7 See <https://decentraland.org/> (Last visited on July 4, 2022).

8 See <https://www.sandbox.game/en/> (Last visited on July 4, 2022).

9 See <https://axieinfinity.com/> (Last visited on July 4, 2022).

10 See <https://zepeto.me/> (Last visited on July 4, 2022).

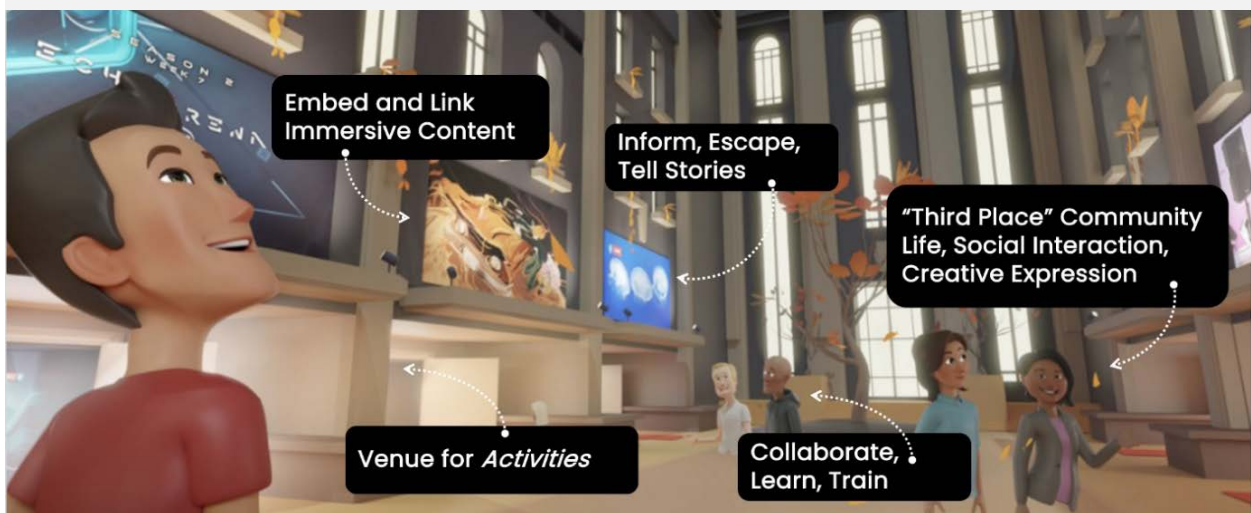
11 See <https://www.somniumspace.com/> (Last visited on July 4, 2022).

1. Introduction

Analysts believe that the development of Metaverse alongside AR and VR technologies will continue to create a host of new opportunities and significantly evolve the digital economies, working environments, and our experiences in society.¹² Many others believe that Metaverse will be the next major iteration of the internet and widely permeate our social experience, despite little clarity and consensus on what this new digital capability means or how it should evolve in terms of governance. With such seeming inevitability, it is crucial to not let this evolution pass us by silently, and actively involve ourselves by paying attention to its development and resultant consequences.

What does the Metaverse do?

The metaverse is the next generation of the Internet: it enables creators to deliver connected, immersive experiences based around activities.



Source: *The Experiences of the Metaverse*, Jon Radoff.¹³

Based on our current understanding, two versions of the Metaverse are being endorsed: a centralized closed platform dominated by the Big Tech (e.g. Horizon, Oculus, Roblox), or a decentralized one based on open protocols and blockchain technologies such as cryptocurrency, non-fungible tokens and decentralized autonomous organizations (e.g. The Sandbox, Decentraland). The nature of these two forms varies in terms of interoperability, sovereignty, and (de)centralized governance and financial system.¹⁴

In this paper, we have systematically analyzed the existing trends along with the various legal and regulatory frameworks which will need to evolve to accommodate the advancements of the Metaverse. The paper also provides a brief introduction to various concepts relating to convergence in the Metaverse and delves into an extensive examination of its impact on certain select key industries. We have also looked at the potential legal and tax issues which may arise in the future.

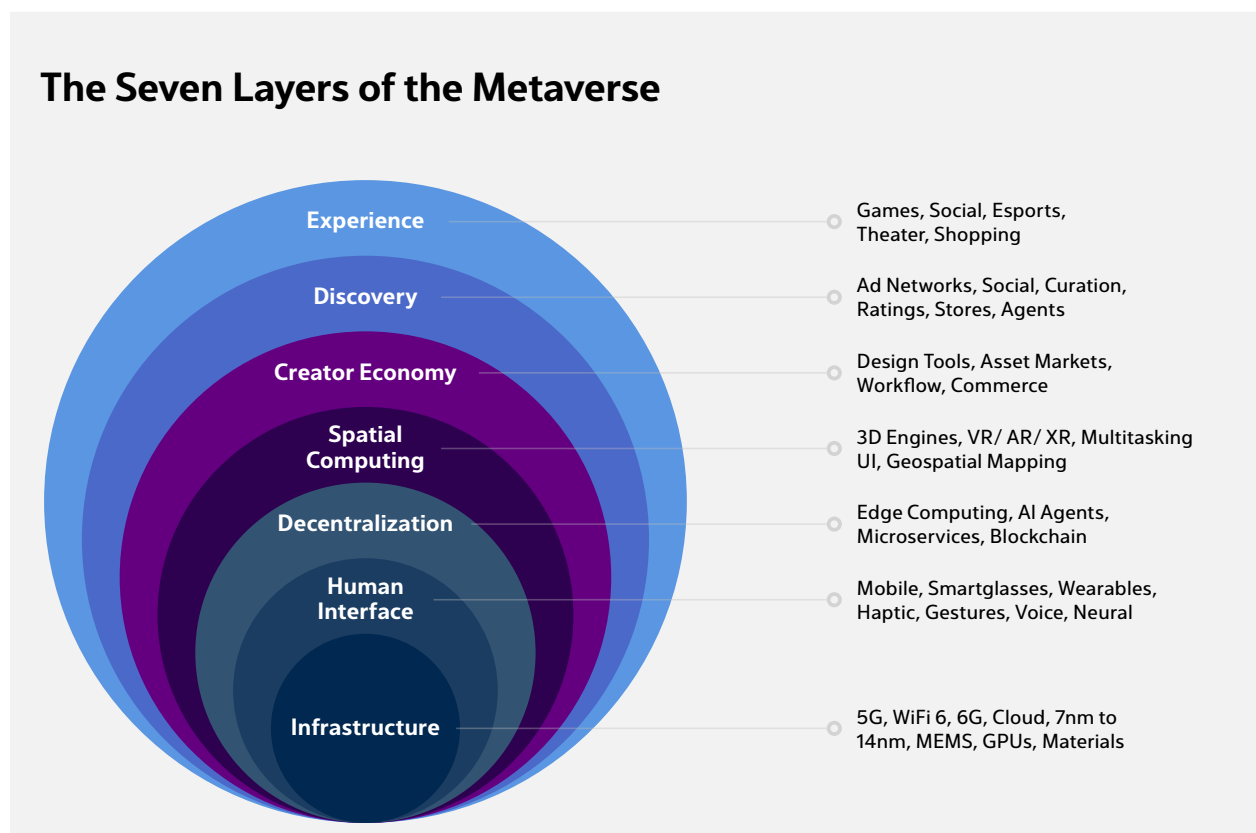
¹² See <https://www.morganstanley.com/articles/metaverse-opportunities-virtual-reality-augmented-reality-technologies> (Last visited on July 4, 2022).

¹³ Available at: <https://medium.com/building-the-metaverse/the-experiences-of-the-metaverse-2126a7899020> (Last visited on July 5, 2022).

¹⁴ See https://outlierventures.io/wp-content/uploads/2021/08/OV-Metaverse-OS_V6.pdf (Last visited on July 4, 2022).

Convergence in the Metaverse

The Metaverse is brought about by a convergence of the physical and the virtual to provide seamless experience of the ‘reality’ both as yourself and through your ‘Avatar’.¹ Experts such as Jon Radoff note that the Metaverse contains seven layers to immerse the user, viz. (i) Experience, (ii) Discovery, (iii) Creator Economy, (iv) Spatial Computing, (v) Decentralisation, (vi) Human Interface, and (vii) Infrastructure.² The convergence of various technological trends towards the creation of Metaverse via AR, VR, Artificial Intelligence, NFTs, cryptocurrency, blockchain, internet of things, 5G network, and haptic technology, brings the different levels of Metaverse to fruition.



Source: *The Seven Layers of the Metaverse*, Jon Radoff.³

¹ See <https://www.jpmorgan.com/content/dam/jpm/treasury-services/documents/opportunities-in-the-metaverse.pdf> (Last visited on July 4, 2022).

² See <https://medium.com/building-the-metaverse/the-metaverse-value-chain-afcf9e09e3a7> (Last visited on July 4, 2022).

³ Available at <https://medium.com/building-the-metaverse/the-metaverse-value-chain-afcf9e09e3a7> (Last visited on July 4, 2022).

2. Convergence in the Metaverse

1. AR / VR

AR and VR technologies have boosted the immersive experience of the Metaverse by adding to the potential for spatial computing and enhancing the human interface capacities beyond the extent of legacy technologies. The computer-generated 3D virtual environment via VR, and the digitally augmented aspects of the physical environment via AR have come together under the now developing concept of mixed reality (“MR”).⁴ MR technologies can enable users to receive a seamless merged experience of wide ranging physical, augmented physical and virtual spaces in real time.

Each of these technologies have been put to a myriad of use cases already. Oculus Quest 2 as well as Samsung and PlayStation VRs have all been launched for immersive experiences within Metaverse platforms such as Decentraland. For users, products such as the HTC Vive Flow take the wearable tech one step further into the human interface level of the Metaverse by taking VR down from a bulky headset to a fairly lightweight, maneuverable pair of goggles.⁵

Businesses such as Snapchat, IKEA and Pokémon Go have also capitalized on the features of AR to assist users with laying digital elements (filters, furniture, or ‘Pokémon’s’) on their physical realities (bodies, houses, and streets). Further, products like the Microsoft HoloLens 2, which allows holographic technology would only enhance usages in varied industries such as education, healthcare, engineering etc.

2. Internet of Things (“IoT”)

A huge part of the Metaverse infrastructure is premised on the internet, which is extended to our physical surroundings more deeply through the network of the IoT. While this performs the function of merging the physical with the virtual, it also brings the physical to the virtual. Therefore, when there is a seamless integration of devices which can communicate with each other and undertake activities useful to human beings, the convergence result is “*Internet of Things*”.

The IoT links thousands of gadgets, including thermostats, voice-activated speakers, and other equipments, to a variety of data. Similarly, the vast quantities of data collected through the digital network within the virtual space of the Metaverse provides for the building blocks of the platform, and a more interconnected world.

IoT could also operate through the virtual adoption of a ‘Digital Twin’, i.e. a close to real-time representation of the characteristics of a unique physical subject.⁶ In essence, IoT helps to effortlessly connect the 3D environment to a wide range of physical objects and it can prove to be that element whose convergence would be key to scaling up the Metaverse. However, true scale might only be possible once complete interoperability is achieved.⁷

4 See <https://docs.microsoft.com/en-us/windows/mixed-reality/discover/mixed-reality> (Last visited on July 4, 2022).

5 See <https://www.vive.com/us/product/vive-flow/overview/> (Last visited on July 11, 2022).

6 See <https://accelerationeconomy.com/Metaverse/how-to-leverage-internet-of-things-iot-opportunities-in-the-Metaverse/> (Last visited on July 4, 2022).

7 See <https://polystream.com/from-the-iot-to-Metaverse/> (Last visited on July 4, 2022).

2. Convergence in the Metaverse

3. Artificial Intelligence (“AI”)

AI can power various layers of immersion within the Metaverse, including discovery, creator economy, spatial computing, and infrastructure. AI algorithms can assist with automating IT operations, intelligent networking, language processing, personalized recommendations, and cause overall immersion within the digital space by intelligently processing the data inputs such as speech through Alexa or textual/visual inputs through NVIDIA’s GauGAN2.⁸

Companies are also taking leaps with developments in AI with self-supervised learning and gesture recognition. Tracking body-language and eye movement are predicted to make the virtual experience in the Metaverse more seamless.⁹ Another AI use case in the Metaverse revolves around the creation of Avatars or digital humans. AI engines can process 2D user images to come up with lifelike virtual recreations of individuals simulating their facial expressions, moods, hairstyles and other personality traits.

Moreover, when AI is fed with historical data, it learns from its past outputs and generates newer ideas based on it. With new information, human feedback, and machine learning reinforcement, the output produced by AI will get better each time. This can play an instrumental role in scaling the Metaverse by making it smarter and capable of performing human-driven tasks without the actual physical intervention of humans.

4. Blockchains, and Non-Fungible Tokens (‘NFTs’)

The nature of blockchain as an encrypted link of digital ledgers allow it (and other technology based on blockchain) to be operated and governed transparently through a peer-to-peer network.¹⁰ This makes blockchain technology a major tool for decentralisation and investment within the Metaverse through various use cases (including cryptocurrencies, which are themselves untethered from the physical world, like the Metaverse, while still providing reliability). In addition to fiat currency, cryptocurrencies are almost inextricably linked to the Metaverse as a primary currency for exchange, so much so that the launch and growth of Metaverse projects will only result in an overall increase for cryptocurrencies.¹¹

Blockchain is also considered central to maintaining security and identity checks in the digital space, and operating smart contracts (digital contracts programmed and run on the blockchain to be auto-executed upon the fulfilment of predetermined conditions).¹² for trades within.

Another crucial use case of blockchain within this growing technological segment is maintaining uniqueness and ownership to strengthen the creator economy through projects based on NFTs. While there is no universal definition, NFTs are generally understood to mean unique and non-interchangeable unit of data stored on the blockchain that can track a unique digital asset’s transfer, ownership and properties.¹³ Today this technology is in widespread use on platforms such as VRChat running virtual marketplaces, and Cryptovoxels organizing virtual art galleries.¹⁴

8 See <https://blogs.nvidia.com/blog/2019/03/18/gaugan-photorealistic-landscapes-nvidia-research/> (Last visited on July 4, 2022).

9 See <https://venturebeat.com/2022/03/02/meta-describes-how-ai-will-unlock-the-Metaverse/> (Last visited on July 4, 2022).

10 See <https://www.xrtoday.com/virtual-reality/what-is-blockchain-and-what-does-it-have-to-do-with-the-Metaverse/amp/> (Last visited on July 4, 2022).

11 See <https://economictimes.indiatimes.com/markets/cryptocurrency/Metaverse-and-its-connection-with-cryptocurrency/articleshow/87741319.cms> (Last visited on July 4, 2022).

12 See <https://www.leewayhertz.com/Metaverse-and-smart-contracts/> (Last visited on July 4, 2022).

13 See <https://www.forbes.com/sites/forbestechcouncil/2021/12/27/the-nft-Metaverse-building-a-blockchain-world/amp/> (Last visited on July 4, 2022)/

14 See <https://www.forbes.com/sites/forbestechcouncil/2022/03/11/what-is-the-role-of-nfts-in-the-Metaverse/?sh=3f47aae6bb87> (Last visited on July 4, 2022).

2. Convergence in the Metaverse

5. Haptics

Haptic technologies stimulate the user's sense of touch by interacting with tactile sensations, and advance the most fantastical and advanced notion of experiences within the Metaverse by adding yet another human interface layer. Merging the physical and the virtual on the most individual level, this technology is still at its experimental phase and is being developed by businesses gunning for their share within the Metaverse. Meta's Power Glove is one such example where users feel a sense of touch when interacting with virtual objects in the Metaverse.

In addition, H2L's wristband which applies electrical shocks to the wearer's arm when experiencing sensations in the Metaverse is another interesting development. Going forward, the advancements in the field of haptics would only make the experiences more immersive / real but could also lead to bodily injury and harm if used wrongly.

6. 5G

With 5G's consistent coverage, global reach, low latency, telco standard, and other features, the virtual reality of Metaverse could become real. Companies like Verizon have already begun showcasing the abilities of 5G apropos the Metaverse.¹⁵ While this is merely a start, one must ponder whether 5G can really augment the much-complicated annotation of the Metaverse. Since the Metaverse requires lightweight accessible AR/VR devices, easy access to switch between different platforms, and seamless processing of unprecedented amounts of data, promise of 5G has people in splits about whether it can really be the next big step for building the infrastructure required to scale Metaverse projects.¹⁶ Experts such as Cathy Hackl warn that despite the inclusion of features in 5G, something as big as Metaverse requires an even wider bandwidth to provide the seamless experience that is much discussed in theory today.¹⁷ The scale at which Metaverse aims to be operated at may be too immense for the 5G network, and points to the need for other networks with lower latency and wider bandwidth, such as 6G and edge computing, for a seamless experience of the virtual space.¹⁸

7. Quantum Computing

Quantum Computing ("QC") aims to harness subatomic particles to perform calculations that are far beyond the reach of the fastest known classical computer today, thereby giving birth to a new breed of computers called quantum computers.¹⁹ While there are a handful of quantum computers across the globe in prototype stages, their potential for advancing computing power and machine learning is virtually unimaginable.

Once implemented, this could translate into much greater computing capacity for the Metaverse, which ultimately may evolve into something even more expansive. Similarly, greater machine learning capacity could be used to provide improved and more tailored user experiences in the Metaverse.

¹⁵ See <https://www.verizon.com/about/news/metaverse-here> (Last visited on July 4, 2022).

¹⁶ See <https://www.ericsson.com/en/blog/2022/4/why-Metaverse-needs-5g> (Last visited on July 4, 2022).

¹⁷ See <https://www.euronews.com/next/2022/03/03/5g-won-t-be-enough-how-are-telecom-companies-building-the-metaverse-with-big-tech> (Last visited on July 4, 2022).

¹⁸ Ibid.

¹⁹ See <https://scienceline.org/2022/03/inside-the-fight-to-protect-your-data-from-quantum-computers/> (Last visited on July 4, 2022).

2. Convergence in the Metaverse

On the downside, the exponentially higher processing power of QC, if deployed on a sizeable scale, can render the most prominent data encryption systems obsolete, including those being deployed on the Metaverse.²⁰

There is, therefore, substantial research into “post-quantum cryptography”, or encryption which can guard against quantum computer attacks. As the Metaverse becomes more ubiquitous and stores an increasing amount of sensitive data, platforms would need to implement adequate measures, including quantum-proof encryption, to ensure that user trust in the platform is maintained.

²⁰ Ibid.

Key Industries

The Metaverse has been widely touted as a 3D fictional world where cutting-edge technologies collide to facilitate interaction with virtual objects in real life with real time information. As multiple opportunities exist to harness the potential of the Metaverse, its uses are ubiquitous across various verticals. To this end, we have highlighted some of the key applications of the Metaverse in some select industries.

1. Media and Entertainment

Described as an enabling tool to experience a deeper sense of immersion in the digital space, the Metaverse promises to fundamentally revolutionize the way films and other media are made, distributed and consumed in the future. This will encompass conventional 2D content being streamed to VR movie theatres¹, exposure to more immersive infotainment experiences, production and consumption of 360-degree videos and socializing at live Metaverse-events.

Even live concerts have emerged to be popular attractions in the Metaverse, where multiple artists and content creators have joined forces to hold virtual concerts, similar to real life. To this effect, games like Fortnite and Roblox have partnered with renowned artists like Ariana Grande, Travis Scott and Lil Nas X to offer unique and interactive musical experiences attracting millions of attendees.²

Further, heavyweights in the media and technology space are making substantial investments in building capabilities and better technology for the Metaverse. With Meta's Reality Labs segment investing \$10 billion in the Metaverse³, Sony committing to a strategic partnership with Roblox⁴ for developing unique musical experiences for the Roblox community while offering commercial opportunities to Sony's music artists, Nvidia's introduction of the Omniverse technology for digitally designing real-world simulations⁵ and Unity's \$1.625 billion takeover deal of the visual effects company Weta Digital⁶, the Metaverse is slated to overhaul the scintillating world of media and entertainment.

There are quite a few other interesting business ideas which are being implemented as well. For e.g., recently, Disney has taken proactive steps towards developing its own theme park Metaverse and was granted a patent for a "*virtual world simulator*."⁷ Such theme parks could be ideal bets as they are less capital-intensive to construct but if executed efficiently, it could create a real boundary-less experience for users across the world.

1 See <https://www.airtel.in/press-release/06-2022/airtel-launches-indias-first-multiplex-in-the-metaverse> (Last visited on June 25, 2022).

2 See <https://www.theguardian.com/music/2021/aug/07/no-limits-in-the-metaverse-video-game-concerts-big-business> (Last visited on June 25, 2022).

3 See <https://indianexpress.com/article/technology/tech-news-technology/meta-spent-10-billion-on-the-metaverse-in-2021-dragging-down-profit-7754565/> (Last visited on June 25, 2022).

4 See <https://www.sonymusic.com/sonymusic/roblox-partnership/> (Last visited on June 25, 2022).

5 See <https://www.nvidia.com/en-in/omniverse/> (Last visited on June 25, 2022).

6 See <https://techcrunch.com/2021/11/09/unity-is-buying-peter-jacksons-weta-digital-for-over-1-6b/> (Last visited on June 25, 2022).

7 See <https://www.businessinsider.in/tech/news/disney-patents-metaverse-technology-for-theme-parks-that-would-track-visitors-while-projecting-personalized-3d-images-for-them/articleshow/88796166.cms> (Last visited on June 25, 2022).

3. Key Industries

2. Gaming and Fantasy

With an estimated 3.24 billion gamers⁸ representing nearly 40% of the world's population, the gaming space has catapulted businesses to connect with technologies like AR/VR, video streaming, real-time 3D rendering, NFTs, blockchains, cryptocurrencies, and other interoperable architecture. Axie infinity, Fortnite, Roblox and a slew of additional projects are already up and running.

Axie Infinity, a game whose objective is to collect “Smooth Love Potions” which function similarly to cryptocurrencies that can be traded or sold in the future, has recorded a total of more than 350,000 daily active users. Further, with a chart-topping 15 million players logged in simultaneously, Epic Games’ Fortnite is an online space where players can curate personalized worlds and battle arenas.

Against this backdrop, Metaverse-gaming is characterized to be more flexible as users will have greater leeway for customization in crafting their own virtual spaces and building sub-games within a larger game. In fact, Roblox’s key driver of success was its feature that allowed players to design their own mini games which could be played by Avatars in exchange for Roblox’s currency, “Robux.” This proves that *Game-Fi* (short for Game Finance) is a critical component of Metaverse gaming where players are rewarded with a blend of in-game tokens, cryptocurrencies and NFTs to stake, trade or sell later. This concept is based on a play-to-earn model which allows players to trade their digital assets outside the gaming platform unlike traditional video games.

Another lucrative avenue is of sports betting where deploying AR/VR technologies could deliver a greater immersive experience allowing betters to closely observe the mannerisms and facial expressions before taking any competitive decisions. British gambling firm Entain (owner of Ladbrokes, Coral, Bwin and other brands) has been in the news for investing over 100 million pounds in acquiring meta-gambling technology.⁹

While Metaverse-gaming is still in a nascent stage, companies across the globe are taking concerted efforts to develop an enhanced version of gaming in Metaverse. Hence, the road ahead looks quite promising.

3. Social Commerce

As Web 3.0 knocks on the door, e-commerce companies are recognizing the need to provide customers with innovative and highly personalized commerce experiences. Brands and retailers must rethink how they engage consumers and build communities to stay relevant. By integrating the accessibility and flexibility of e-commerce along with the spatial presence of avatars and physical retail shops, a new era of social commerce has emerged.

Shoppers are bound to have an engaging experience with their Avatars entering 3D rendered virtual shops where they can browse and buy real world merchandise. With a virtual cart serving as one’s personal checkout counter, retail experiences in the Metaverse are set to create a more immersive online transaction process. It would likely accept cryptocurrencies, NFTs, and currency-converted-tokens as payment mechanisms in addition to fiat currency.

⁸ See <https://www.forbes.com/sites/davidblack/2022/05/05/cartoons-and-video-games-evolved-into-bitcoin-and-nfts/?sh=ca9fa46316ef> (Last visited on June 25, 2022).

⁹ See <https://www.reuters.com/world/uk/entain-targets-metaverse-with-new-innovation-hub-2022-01-31/> (Last visited on June 25, 2022).

3. Key Industries

With brands unfolding opportunities in this space, the phrase “Direct-to-Avatar” (“D2A”) is also expected to be used extensively in the future. D2A could bring forth the next generation sales channel where consumers purchasing digital goods for their avatars. To give an example, Mahindra’s Dealerverse will allow buyers to visit a virtual dealer, engage with sales staff and even buy a car in the Metaverse.¹⁰

Similarly, Decentraland’s Metaverse Fashion Week included over 60 brands, including Tommy Hilfiger, Fred Segal, Estee Lauder, and GM where attendees indulged in shopping virtual fashion, music events and afterparties.¹¹ Roblox sponsored the Gucci Garden, a two week art installation aimed to build brand awareness where visitors could buy Gucci merchandise for their Avatars.

4. Tourism

Broadly, tourism in the Metaverse may offer facilities such as virtual vacation booking portals where, before booking a vacation, travelers will also be able to conduct a 3D exploration of hotel facilities without being physically present at the location. Virtual tourism in the Metaverse will make a major breakthrough which will allow virtual travel to various destinations. These services will allow consumers to take 360-degree virtual tours of a digital space identical to a realistic world.

Meta-tourism has already gained tremendous headway in the industry as Seoul became one of the first destinations to chart plans for transitioning into a “meta” city by 2023. Labelled as “Metaverse Seoul”, tourists will be able to walk around some of the city’s top tourist attractions, attend various festivals including the Seoul Lantern Festival without the actual inconveniences of travelling.¹² Similarly, Madrid offered free 360-degree virtual tours for interested visitors to help them plan their visit in advance.¹³ Moreover, the Metaverse can host online trade shows and expos where social interactions take place via simulations by Avatars, AR and VR technologies.

The Metaverse could also potentially unlock a different kind of time travel, allowing visitors to go back in time and explore the 3D renditions of certain historically significant sites.

While there is no substitute for human senses which help us in getting a wholesome, real experience of a destination, Metaverse-tourism will be a tool that will integrally complement the travel eco-system rather than replace it. Thus, it will serve as a springboard to traditional tourism.

5. Real Estate

Sales of virtual real estate in the Metaverses have surpassed \$500 million last year and are projected to surpass \$1 billion this year.¹⁴ Developers create large maps of land which are divided into smaller digital real estate “parcels” which can be traded in the form of platform currency(ies). For example, you can buy and sell parcels of digital land on Decentraland through its currency token MANA. The value of the parcel is contingent on its

10 See <https://economictimes.indiatimes.com/markets/cryptocurrency/tech-mahindra-unveils-techmverse-to-drive-commerce-in-metaverse/articleshow/89896873.cms> (Last visited on June 25, 2022).

11 See <https://decentraland.org/blog/announcements/metaverse-fashion-week-is-here/> (Last visited on June 25, 2022).

12 <https://www.cnbc.com/2022/05/30/south-koreas-investment-in-the-metaverse-could-provide-a-blueprint.html> (Last visited on June 25, 2022).

13 See <https://www.themayor.eu/en/a/view/madrid-offers-a-new-360-virtual-tour-9845> (Last visited on June 25, 2022).

14 See <https://www.cnbc.com/2022/02/01/metaverse-real-estate-sales-top-500-million-metametric-solutions-says.html>

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utility, location, population and the demand-supply ratio.¹⁵ On purchasing a virtual land parcel, one can build games on it, display their NFTs, showcase advertisements, host parties, or even rent it out to others who need virtual space.

It is anticipated that corporates and luxury brands are going to be the initial players in digital real estate with brands like Adidas¹⁶, Clinique¹⁷ and Forever 21¹⁸ trying to pierce into the Metaverse. Meanwhile, Republic Realm, a leader Metaverse and NFT investment, has reportedly spent \$4.3 million for acquiring a digital land parcel.¹⁹ Of an estimated 100 fantasy islands built in the Sandbox Metaverse featuring villas with yachts, jet skis and other amenities, 90 islands were sold for approximately \$15,000 each within the first 24 hours while a few others were sold for \$100,000.²⁰

Although Metaverse is expected to boom in the coming years, it is still rife with uncertainties for if a Metaverse platform goes offline, all assets stored on it may be permanently erased. If solutions to these issues are formulated, meta-estate will soon be embedded in the real estate landscape.

6. Education

Education is probably one of the most useful cases for the Metaverse. With the boom in EdTech, learning moved largely online. However, online classes do not match the social experience and interaction and in-person education system can offer. Metaverse can help enhance the quality of education imparted in myriad ways. With a blend of virtual classrooms and AR/VR technologies, the Metaverse can provide a life-like learning experience incorporating elements from the real world. For instance, students may be able to experience the working of an atom or the human body while being inside one virtually. Similarly, students could be transported to virtual factories to observe the machinery up close.

Similarly, Avatars can simulate the identity of its user including the students and teachers which adds a real characteristic to meta-classes. The presence of a school or a university in the Metaverse can therefore make learning experiential, fun and productive. It can also help in overcoming barriers of access as every Metaverse citizen could actually get access to the same institute while within the four corners of their house. With technological advances being made in body-movement recognition technology, virtual classrooms can also help connect world-class sports coaches to students in any part of the world. However, for this, educational institutes will have to ensure that devices are made readily available to all students.

Contextual digital learning on the Metaverse can accelerate students' learning curve. To this end, various companies like Meta²¹ and Roblox²² have invested in meta-education solution technologies. Recently, Microsoft announced the launch of Mesh which will allow students, faculty and other Microsoft Teams users to collaborate virtually through 3D Avatars.²³

¹⁵ See <https://timesofindia.indiatimes.com/blogs/voices/virtual-real-estate-in-the-metaverse-is-booming-be-a-part-of-it-now/> (Last visited on July 11, 2022).

¹⁶ See <https://www.adidas.com/us/metaverse> (Last visited on June 25, 2022).

¹⁷ See <https://www.clinique.com/metaverselikeus> (Last visited on June 25, 2022).

¹⁸ See <https://www.businesswire.com/news/home/20220607005321/en/Forever-21-x-Barbie-Launches-In-Store-Online-and-in-the-Metaverse> (Last visited on June 25, 2022).

¹⁹ See <https://www.outlookindia.com/business/metaverse-cryptocurrency-bitcoin-ethereum-nfts-virtual-land-real-deal-why-companies-are-investing-in-the-metaverse--news-189534> (Last visited on June 25, 2022).

²⁰ See <https://www.ft.com/content/f5d5bed3-8cf2-40c6-8f85-6b824a223ffe> (Last visited on June 25, 2022).

²¹ See <https://about.facebook.com/immersive-learning/> (Last visited on June 25, 2022).

²² See <https://education.roblox.com/ko-kr/resources/roblox-remote> (Last visited on June 25, 2022).

²³ See <https://www.microsoft.com/en-us/mesh> (Last visited on June 25, 2022).

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7. Healthcare

The integration of technology and healthcare is not new. There are multiple applications in the digital health sector including wearables, telemedicine, e-pharmacies, virtual medical assistants etc. With the advent of Metaverse, the healthcare industry is all-set to expand the medical uses of AI and AR/VR technologies to increase patient output and scale-up research and development. In India, both healthcare providers and digital health companies are exploring possibilities for the creation of meta-hospitals, virtual reality-mediated activities and health wellness metaverse platforms.²⁴ For instance, GOQii has recently announced a Metaverse ecosystem that incentivizes healthy behaviours and gamified fitness actions.²⁵ Another key area of focus of healthcare players is counselling and psychotherapy treatments for mental health disorders. Companies such as Moody Links²⁶ are leveraging the Metaverse platform for better outreach for mental health workshops and support projects.

Some of the more complex applications of Metaverse in healthcare would be joint remote surgeries and procedures. Robot-assisted operations are commonplace now for undertaking complicated procedures with accuracy and flexibility. Combining these existing technologies with the Metaverse could therefore assist surgeons to perform remote procedures efficiently. In May 2022, the Metaverse was indeed used to facilitate a remote surgery for breast cancer.²⁷ The Metaverse is also likely to gain dominance in medical education and training. It could enable the creation of an immersive and collaborative online medical education environment which will help medical students to receive practical training of medical procedures through simulations at a relatively lower cost and with limited resources. The augmented reality spaces can also be beneficial to practicing healthcare professionals to undertake continuous medical education trainings or medical equipment trainings.

24 See <https://www.businesstoday.in/crypto/story/healthcare-companies-are-entering-the-metaverse-but-can-it-help-the-sector-338719-2022-06-22> (Last visited on July 11, 2022).

25 See <https://goqii.com/blog/goqii-to-launch-health-metaverse-in-partnership-with-animoca-brands/> (Last visited on July 11, 2022).

26 See <https://www.moodymindedminks.com/> (Last visited on July 11, 2022).

27 See <https://beincrypto.com/surgery-in-the-metaverse-doctor-is-900-kilometers-away/> (Last visited on July 11, 2022).

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1. Avatar Assault and Sexual Harassment when compared to a natural person

Crime on the internet, generally, has baffled regulators and other stakeholders ever since the onset of the digital revolution. While digital theft, cyberextortion, online harassment, cyber terrorism etc continue to be prevalent, in this section we have focused on avatar liability in the Metaverse, especially assault and sexual harassment.

While the Metaverse holds immense potential to re-shape and re-imagine virtual spaces, unfortunately, crime and mischief have already found their way in. On Meta's Horizon Worlds, a female beta tester reported being sexually assaulted¹, and there have been many more such reports subsequently.² While sexual harassment and cyber abuse on the internet and in multiplayer games are painfully common, such actions may become even more common and enhanced with the Metaverse(s). With advances in VR technology, the more realistic the Metaverse becomes, the more real such virtual assaults will also feel.³ To illustrate, what if while walking on the streets of a virtual world, a group of Avatars assaults you with sticks or other objects lying around? True, until full-body sensors / machine nodes are used, there may not be any physical impact of such an assault, but the mental impact could be very much real.

As a solution on the architectural level, Metaverses may be developed such that these interactions are not possible by design or through on-demand safety features⁴. However, such measures may not be highly effective given that these would (i) be completely dependent on private entities such as the developers / producers of the Metaverse, (ii) require platforms to weigh user safety against limitations on interactions between users, and / or (iii) shift the onus on users to act mindfully during such incidents.⁵

The platform may also, through its terms of use, prohibit certain behaviour, but breach of such terms would largely lead to contractual liability. Platforms may not pursue individual Avatars given the costs and practical challenges involved. Moreover, mala fide actors could easily create multiple accounts if any one of their accounts is blocked due to any violations.⁶

As a result, it is important to assess whether users can seek remedies under any statutory law, as opposed to being dependent on the actions of commercial actors. Traditionally, however, penal legislations generally envisage assaults to be in the physical context.

For instance, the Indian Penal Code, 1860 ("IPC") which is the criminal code of India dealing with offences of

1 See <https://www.technologyreview.com/2021/12/16/1042516/the-metaverse-has-a-groping-problem/> (Last visited on June 17, 2022).

2 See <https://www.verdict.co.uk/metaverse-meta-sexual-assault/>; <https://www.nbcnews.com/tech/internet/metaverse-virtual-worlds-lack-adequate-safety-precautions-critics-say-rcna15418> (Last visited on June 17, 2022).

3 For e.g., see <https://www.wired.com/story/crime-metaverse-virtual-reality/> (Last visited on June 17, 2022).

4 For e.g., Meta has announced a "Personal Boundary" feature which stops other users from coming in close contact - <https://www.verdict.co.uk/metaverse-meta-sexual-assault/> (Last visited on June 17, 2022).

5 For e.g., Meta's current safety measures include the ability to mute / block people or to transfer one's Avatar to a "safe zone", which may be effective, but depend on the user themselves to take affirmative actions at the time of such incidents to ensure their own safety (see <https://www.nbcnews.com/tech/internet/metaverse-virtual-worlds-lack-adequate-safety-precautions-critics-say-rcna15418>) (Last visited on June 17, 2022).

6 An alternative solution would be for the platform to verify and identify each user and subsequently blacklist the user. This would be similar to the "verified" tag that numerous social media platforms provide to certain users. However, denying entry on the basis of a "verified" tag may not be agreeable to or feasible for platforms.

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“criminal force” and “assault” has an inclusive definition of the term “person”⁷ which is not limited to natural persons. Although, whether an Avatar in itself can be categorized as a “person” and whether such a virtual person could be considered to be injured, scared or annoyed or can commit a crime, continues to be contentious. As per IPC, a person is said to use “force” to another if he *inter alia* causes motion, or change of motion, or cessation of motion to a substance such as to bring that substance in to contact with anything so situated that such contact affects that other’s sense of feeling.

In the traditional sense, this could include, say, a person throwing a brick at a glass window which shatters, and the broken glass falls on another person. Taking illustration from the Metaverse from above, however, in order for Avatar A to hit Avatar B on the Metaverse, A would likely cause motion to an input device (whether a keyboard, joystick or motion controller) to pick up a virtual object and use it to hit Avatar B. While it can be argued that Avatar B’s sense of feeling is being affected, it would be much more difficult to contend that Avatar A’s input device is being brought “in contact with” a virtual object which is then affect B’s sense of feeling.

It would be difficult to argue that assault in the Metaverse involves the use of “force” as per this definition. On the other hand, criminal force includes use of force on another person without that person’s consent, and intending to use such force, or knowing that the use of such force will cause injury, fear or annoyance to such other person. Hence, while use of force is a pre-requisite to this offence, *physical injury* as a consequence of such force is not.

Similarly, the definition of “hurt” means bodily pain, disease or infirmity⁸ which again may be difficult to attribute to an Avatar. Even for the offence of rape, the Indian criminal code refers to the use of or the effect on physical parts of the body. Other sexual crimes pose the same problem, thus making an offence attributable to an Avatar even more contentious.

Interestingly, however, when it comes to sexual harassment (which may not necessarily involve assault), the IPC as well as the Information Technology Act, 2000 (“**IT Act**”) provide for specific provisions which penalize online sexual harassment and stalking. For e.g., Sections 354A and 354D of the IPC criminalise sexual harassment and stalking, including over the internet. However, the provisions largely relate to a “man” as a perpetrator, and some provisions require a “woman” to be a victim of such an offence. The term “man” and “woman” refer to natural persons,⁹ and thus, Avatars may not strictly fall under the said categorization. However, it can be argued that the actions of an Avatar are in fact the actions of the human controlling such an Avatar, and accordingly, the human player should be liable. Similarly, the human controlling such digital persona of the Avatar may be considered as a victim in cases of sexual harassment. Some provisions under the IT Act also contain broadly worded provisions and punish “whoever” publishes / transmits or causes to be published / transmitted obscene material¹⁰ or sexually explicit material¹¹ in electronic form. Thus, the actions of an Avatar could be attributed to the natural person, hence potentially triggering liability in such cases. Notably, from an overall Indian penal law perspective, it would also be important to ascertain *mens rea* or the intent behind such actions, prior to attributing liability, and this assessment would depend on the facts of each case.

The key takeaway is that different offences pertaining to assaults under criminal statutes may have different ingredients to constitute offence, whether it is of physical acts, physical injury, or the involvement of a natural person. Unless the offence is not perpetrator and victim-neutral, and does not require bodily injury as a pre-

7 Section 11 of IPC provides that “The word “person” includes any Company or Association or body of persons, whether incorporated or not.”

8 Section 319 of the IPC.

9 Section 10 of the IPC.

10 Section 67 of the IT Act.

11 Section 67A of the IT Act.

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requisite to the offence, assaults by Avatars are unlikely to be covered under these provisions unless there is jurisprudence to the contrary.

While jurisprudence regarding physical assault is extensive, it is helpful to look at a few other jurisdictions so as to understand how some statutes are worded, and whether virtual assault by Avatars could be considered as an offence under such laws. For e.g., in Singapore, the Singapore Penal Code, 1871 provides similar definitions of “force”, “person”, “man” and “woman” as that of the Indian criminal code. Thus, many of the offences as discussed above may entail similar issues under the Singapore law as well.

Also, under the Communications Act, 2003 of the UK, Section 127 penalises “improper use of public electronic communications network”. Under this section, a person is guilty of an offence if he “(a) sends by means of a public electronic communications network a message or other matter that is grossly offensive or of an indecent, obscene or menacing character; or (b) causes any such message or matter to be so sent.” This provision may arguably be used to attribute liability of an Avatar to a natural person who is sending the message or matter in question (similar to the IT Act provisions discussed above).

As more and more users spend an increasing amount of time on the Metaverse, the case for user protection from crimes on the Metaverse will only increase. Some of the approaches that regulators may consider are: (i) Relying on the market and self-regulation by platforms; (ii) Expanding interpretation of existing laws: For e.g., there is a strong argument to be made that virtual assault could result in bodily harm, if it leads to demonstrable mental injury; (iii) Amendments to laws / fresh legislation, such that offences in the Metaverse could be specifically called out, and / or there could be an obligation on Metaverse platforms to ensure user safety; and (iv) As a more radical approach, legal personhood for Avatars could be considered for the limited purpose of recognizing harms caused and imposing punishments for actions in a virtual space.

2. Intellectual Property: Ownership and Enforcement

The need for protection of intellectual property is heightened in the Metaverse - a space dominated by technology, variety of content, plurality of creatives and creators, and new avenues to express and exploit intellectual property (IP) rights.

The involvement of new age concepts such as AI-based content creation or use of non-fungible tokens (NFTs) pose new challenges and questions regarding what constitutes IP, who owns the IP, the possible streams of exploitation of IP and enforcement of IP rights. We have enumerated below certain key touchpoints regarding IP which could be relevant for the Metaverse.

A. Patents

Metaverse is a manifestation of what the software projects in front of our eye. We experience it using the hardware that make Metaverse a reality. While there have been no publicised Indian patents/patent applications pertaining to the Metaverse till date, various global patent applications have already been filed with an aim to establish a monopoly in the Metaverse. Some of these include Apple Inc.’s application to the United States Patent and Trademark Office (USPTO) for registration of a system that generates accurate Avatar movements¹² and Meta

¹² See <https://www.patentlyapple.com/2021/07/apple-has-won-a-patent-relating-to-future-avatar-body-movements-in-real-time.html> (Last visited on July 4, 2022).

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Inc's applications for registration of a technology to customise objects and locations within the Metaverse.¹³

The Indian Patents Act, 1970 ("**Patents Act**") like other jurisdictions, provides the trinity test of novelty, non-obviousness and industrial utility for an invention to qualify for a patent in India. The Patents Act excludes certain types of inventions from patentability¹⁴ irrespective of whether such inventions are novel, non-obvious and have utility. One of the exclusions is in relation to computer programmes *per se*.¹⁵ Therefore, for a computer programme to be patentable in India, typically, the invention should ideally cover both hardware and software components. For example, AR/VR systems, camera sensors, systems for haptic feedback, display screens etc., coupled with software have greater chances of patentability when compared to computer related inventions which only involve software.

However, in the recent past, inventions that are largely software related have also been considered patentable. For such inventions, the applicants would need to exemplify a technical effect/technical contribution over existing art or be able to show that the invention can provide technical solution to a technological problem, to be considered patentable.¹⁶ The terms "technical contribution"/"technical effect" have not been defined in the law. The Guidelines for Examination of Computer Related Inventions, 2013 ("**2013 Guidelines**")¹⁷ defined "technical effect" as "*the solution to a technical problem, which the invention taken as a whole, tends to overcome.*" The 2013 Guidelines provided some examples of technical effect including higher speed, reduced hard-disk access time, more economical use of memory, etc. While the "technical effect" test continues to be used, this definition has been deleted from the Guidelines for Examination of Computer Related Inventions, 2017.¹⁸

In the recent past, the Intellectual Property Appellate Board ("**IPAB**") relied on several EU decisions to determine what constitutes "technical effect".¹⁹ The IPAB has held an application for "*method and device for accessing information sources and services of the web*" to be patentable and not barred under the Patents Act as being a mere "computer programme *per se*" after determining, on the basis of the evidence, that the invention made a technical contribution to the art and had a technical effect. In doing so, the IPAB also considered the definition of "technical effect" provided under the 2013 Guidelines and held that the claimed invention falls under the indicators of technical effect i.e. higher speed, more economical use of memory and a more efficient data base search strategy. In a similar vein, all inventions related to technologies pertaining to the Metaverse, be it a software for tracking facial expressions, creating digital Avatars that resemble a user's physical appearance, etc. will need to qualify the test of having a "technical effect". The analysis will be on a case to case basis.

Another key aspect of Metaverse is interoperability. Interoperability in the Metaverse will enable movement of users between multiple virtual worlds thereby making the Metaverse more user friendly and possibly, more inviting. Interoperability will bring itself more close-to-reality experience which allow users to move from one environment to the other, similar to the real world. However, the need for interoperability in any sphere brings with itself the need for creating standards regarding technical specifications. This is likely to give rise to standard essential patents ("**SEP**"), similar to the telecommunications industry. SEPs bring with them challenges pertaining to licensing as SEP owners may not offer the best royalty rates always to prospective licensees. This has given rise to the need for licensing on fair, reasonable and non-discriminatory ("**FRAND**")

13 See <https://www.ft.com/content/76d40aac-034e-4e0b-95eb-c5d34146f647> (Last visited on July 4, 2022).

14 Section 3 of the Patents Act.

15 Section 3(k) of the Patents Act, 1970. Other exclusions include inventions which are frivolous, inventions which could be contrary to public order or morality, business methods, etc.

16 See Telefonaktiebolaget Lm Ericsson v. Intex Technologies (2015).

17 Available at https://ipindia.gov.in/writereaddata/Portal/IPOGuidelinesManuals/1_36_1_2-draft-Guidelines-cris-28june2013.pdf

18 https://ipindia.gov.in/writereaddata/Portal/IPOGuidelinesManuals/1_86_1_Revised___Guidelines_for_Examination_of_Computer-related_Inventions_CRI___pdf (Last visited on July 4, 2022).

19 See the decision of the IPAB in Allani Ferid v. Assistance Controller of Patents & Designs, OA/17/2020/PT/Del, decision dated July 20, 2020

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terms which is imposed by the standard setting organisations on SEP holders. However, experience from the smartphone industry has shown that agreeing FRAND terms is not always straightforward and could lead to multiple litigations if parties do not agree on the royalty rates.

B. Copyright

Opportunities in the Metaverse are endless and therefore, copyright takes a whole new dimension. There is space for authors to create, to collaborate, and generate content in every possible form. One can enjoy music festivals, fashion shows and other immersive experiences in the Metaverse. Users have the creative liberty to choose their Avatars and, in some cases, can also interact with the platform in a manner that leads to creation of user generated content on the platform. Thus, various types of copyrightable works get created every second, either by single user, multiple users, platform and user, AI or AI and user. This creates interesting ownership and exploitation issues.

The Indian Copyright Act, 1957 (“**Copyright Act**”), supported by the Copyright Rules, 2013, is the governing law for copyright protection in India. Like most copyright legislations around the world, the Copyright Act defines “copyright” widely, and is considered a bundle of rights. Copyright means the exclusive right to do or authorise a third party to do certain acts including reproducing the work in any material form, issue copies of the work to the public, perform the work in public, make a cinematograph film or sound recording in respect of the work and make translations and adaptations of the work.²⁰ Copyright subsists in an original literary, dramatic, musical or artistic work, cinematograph films, and sound recordings. The Copyright Act treats computer programmes²¹ as literary works.²² Rights under the Copyright Act with respect to an original work vest with the author as soon as work is created.²³ Registration of the works is not compulsory to enjoy rights under the Copyright Act.

Some of the unique situations that are likely to arise, considering the unique nature of the Metaverse are examined below:

When creating an NFT out of an existing work, it will have to be seen as to who owns the rights to create digital works. Different rights in a work may be owned by different parties. For instance, in case of a film/web-series contracts involving more than one producer, different co-producers of a film/web-series may hold different rights. While one person may own the rights to exploit the film in future forms, the rights to make digital works from the film/web-series may be owned by another party. Similarly, some rights may be retained by the artist who has acted in the film/web-series, such as gamification, merchandising, etc. Considering the scope of commercialisation in the Metaverse through other digital assets like NFTs and the like, parties have already started ensuring that rights to create such digital assets are called out in agreements. In relation to existing works which are governed by existing agreements, stakeholders need to determine which party holds the rights to create digital works before creating such works through diligence process.

A similar issue recently arose in relation to certain paintings of the renowned painter, Mr. M.F. Hussain based

²⁰ Section 14 of the Copyright Act.

²¹ The Copyright Act defines “computer programme” as a set of instructions expressed in words, codes, schemes or in any other form, including a machine readable medium, capable of causing a computer to perform a particular task or achieve a particular result.

²² Section 2(o) of the Copyright Act.

²³ Section 14 of the Copyright Act provides the rights of a copyright owner. This includes the right to reproduce works, issue copies, make adaptations, etc.

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on which NFTs were created and sold by a famous art dealer.²⁴ M.F. Hussain's estate claimed that while the art dealer acquired the right to display the painting itself, they did not have the right to create digital works out of the painting. As per news reports, the dispute has been settled between the parties.²⁵ In this case, the art dealer has alleged that it had the requisite rights²⁶ under their contract to create digital works. However, such disputes may become common with the rise of the Metaverse.

A scenario where copyright infringement could arise is when a digital version of a physical world is created in the Metaverse. When creating such digital versions, platforms must be careful to exclude any elements that may be owned by a third party. For example, issues pertaining to copyright infringement could arise if a platform recreates a street in the Metaverse which has renowned, privately-owned buildings (especially if the façade of the building have unique designs and are artistic works which can be copyrightable), if done without the permission of the owner of such buildings.

Metaverse platforms also allow co-creation of content to enhance the user experience. User generated content in the Metaverse poses its own set of questions regarding IP rights. Given that Metaverse allows collaboration of users, leading to content creation, one needs to see how IP ownership is to be determined. This may become relevant in a case where a user wants to retain / transfer user created IP from one virtual world to another virtual world in the Metaverse. In such situations, platform and user rights (*including inter-se user rights*) would need to be carefully considered.

Another important aspect of Metaverse is that it allows users to create Avatars. Users in the Metaverse have hundreds of options to choose from to make their Avatar look a certain way. Should user copy the look of any individuals, it will create personality rights issue.

In India, personality rights are not codified under any law. If a person is not a celebrity and their identity is misappropriated in the Metaverse, such person may have recourse under their right to privacy and provisions of the Information Technology Act, 2000. However, concepts of personality rights will have to be examined when the individual in question is a celebrity. Courts have recognised personality rights as a subset of the right to privacy.²⁷ Several judgments have also recognised the right of celebrities to control use of their name, characteristics, likeness when such use is commercial in nature, such as to advertise a particular product.²⁸ If the use of a celebrity's name or likeness leads to harming their reputation, a defamation claim may lie as well. For instance, if a celebrity's name is used by a user in relation to an Avatar which resembles the celebrity and the Avatar does certain unlawful acts in the Metaverse, the celebrity could bring an action against the user of the personal in the form of an Avatar.

C. Trademarks

The Metaverse brings with itself a multitude of marketing opportunities. Brands have already started capitalising on this through partnerships with Metaverse platforms to offer branded clothing and accessories for Avatars, opening up digital stores in the Metaverse, etc. Brands have, in fact, been able to sell digital versions of goods for a higher price in the Metaverse than in the physical world. For instance, Gucci sold a digital version

24 See <https://news.bloomberglaw.com/ip-law/artists-estate-drops-ownership-defense-in-nft-copyright-suit> (Last visited on July 4, 2022).

25 Ibid.

26 As claimed in the suit filed by the art dealer, available at <https://www.thefashionlaw.com/wp-content/uploads/2022/02/tamarindart-v-husain-copy-right-nft-complaint.pdf> (Last visited on July 4, 2022).

27 R RajaGopal v State of Tamil Nadu (JT 1994 (6) SC 514).

28 Titan Industries Ltd. vs. Ramkumar Jewellers, CS(OS) NO. 2662/2011.

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of one of its bags for roughly USD 4,000 on the Metaverse platform Roblox. The same bag costs about USD 3,400 in the physical world.²⁹

Trademark applications are already filed in relation to “virtual assets” and “virtual goods” across the world by the likes of Gucci, Prada, Nike, etc. In India, there has been a rise in trademarks applications under classes 9,³⁰ 35³¹ and 41³² for registration of trademarks in relation to online virtual goods and services by companies such as Walmart, Vogue, Ajio Luxe and others. However, since trademark rights are territorial and the Metaverse has no boundaries, brand strategies of businesses would need to be carefully evaluated so as to ensure maximum brand protection in the Metaverse.

When brands partner with Metaverse platforms, the license terms agreed between the parties will play a key role in ensuring protection and quality control of the brand. Considering that the Metaverse is a digital universe, brands may want to pick and choose in which part of the universe their brand and their products should be visible/usable by users. For instance, a brand which promotes healthy food habits may not want to be featured inside a restaurant known for selling junk food. Further, as and when interoperability becomes a reality, brands may want to bring in clauses restricting platforms from allowing users to move their branded virtual goods between different virtual worlds.

Another unique issue that the Metaverse may pose is in relation to recreation of stores of famous brands. Several brands own flagship stores around the world which are known by customers all over the world (for e.g., the Macy’s store in New York city). An interesting question would be if the platform need permission from Macy’s to recreate their store, even if it not branded as “Macy’s” as customers may still associate the store due to its unique location to Macy’s. If this store in the Metaverse is branded with another brand, can Macy’s have a claim against such brand and the Metaverse platform by insisting that the space should be used by Macy’s store only?

D. Infringement in the Metaverse

In light of the complex nature of real-virtual interactions within the Metaverse, enforcement of IP rights pose questions regarding jurisdiction and extraterritoriality. With respect to copyright, the Berne Convention provides that each of the contracting countries shall provide automatic protection for works first published in other countries who are signatories to the Berne Convention.³³ India is also a signatory to the Berne Convention. Therefore, since protection of copyright in a way extends beyond the territories of a nation, enforcement of copyright is likely to be easier.

Unlike copyright, patents and trademarks are territorial rights. With respect to trademarks, even in the absence of statutory protection in India, rights in a trademark can be claimed if there is use of a trademark or the trademark owner is able to establish cross border reputation of the trademark. In such cases, the trademark owner can bring an action for passing off. However, in case of a patent, an action can be brought only once a patent is granted in India.

29 See <https://www.scmp.com/magazines/style/news-trends/article/3136325/digital-gucci-bag-sold-us4000-gaming-platform-roblox> (Last visited on July 4, 2022).

30 Scientific, nautical, surveying, electric, photographic, cinematographic, optical, weighing, measuring, signalling, checking (supervision), life saving and teaching apparatus and instruments; apparatus for recording, transmission or reproduction of sound or images; magnetic data carriers, recording discs; automatic vending machines and mechanisms for coin-operated apparatus; cash registers, calculating machines, data processing equipment and computers; fire extinguishing apparatus.

31 Advertising, business management, business administration, office functions.

32 Education; providing of training; entertainment; sporting and cultural activities.

33 The Berne Convention is an international copyright agreement adopted by an international conference in Berne in 1886 and subsequently modified several times (Berlin, 1908; Rome, 1928; Brussels, 1948; Stockholm, 1967; and Paris, 1971).

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If infringement does occur (and there are many instances already) who will have jurisdiction with respect to infringement actions in the Metaverse? In several judgments, Indian courts have adopted the concept of “purposeful availment” to determine if a defendant can be sued for IP infringement in India.³⁴ Similar principles will likely be applied when dealing with cases pertaining to infringement in the Metaverse. From a remedy standpoint, it needs to be evaluated whether Indian courts can order global takedowns or would the relief be only limited to geo-blocking in India. In the case of *Swami Ramdev and Anr. v Facebook Inc and Ors.*³⁵ the Delhi High Court ordered take down of defamatory videos globally, if uploaded from India. For uploads from outside India, the court ordered platforms to geo-block content to ensure that users from India were unable to access the content. While this judgment was not related to IP rights, similar principles may be applied in infringement actions in the Metaverse.

As a starting point, companies should adopt strategies to leverage their IP in the Metaverse, especially on brand registration and protection. In addition, licensing agreement / clauses would need to be carefully negotiated considering the ubiquitous nature of the Metaverse. Further, AI-based technologies can also be deployed to monitor use of IP and identifying potential infringements. Thus, IP strategies in the Metaverse would need to be bundled with technology for a more comprehensive outreach.

3. Data Protection and Privacy

Metaverse applications will need incremental volumes of personal data in order to generate immersive and customized experiences for users. The sheer volume and sensitivity of personal data needed fuel the metaverse, opens up new dimensions in ongoing conversations into the legal and policy imperatives for data protection and privacy in the context of the Metaverse.

A. Current Data Protection Laws

Data protection in India is currently governed by the IT Act and the Information Technology (Reasonable security practices and procedures and sensitive personal data or information) Rules, 2011 issued under it (“**Data Protection Rules**”).³⁶

³⁴ *Tata Sons Private Limited v. Hakuna Matata Tata Founders & Ors.*, CS(COMM) 316/2021 & I.A.8000/2021, decision of the High Court of Delhi dated October 26, 2021.

³⁵ CS (OS) 27/2019 (High Court of Delhi).

³⁶ In addition to the IT Act and Data Protection Rules, there are certain sector-specific data protection obligations and requirements, for instance in the telecommunications, insurance and banking and financial services sectors.

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The Data Protection Rules specifically regulate:

- i. ‘Personal Information’ has been defined as “*any information that relates to a natural person, which, either directly or indirectly, in combination with other information available or likely to be available with a body corporate, is capable of identifying such person.*”³⁷ The IT Act or the Data Protection Rules do not specify any compliances for an entity dealing with personal information. Nonetheless, penal provisions may apply to offenders who, while providing services under the terms of a lawful contract, secure access to the personal information of any person and disclose such personal information without authorization with the intent to cause or knowing that they are likely to cause wrongful loss or wrongful gain.³⁸
- ii. ‘Sensitive Personal Data or Information’ (“**SPDI**”) is defined under the Data Protection Rules to mean the following items of personal information: “*password; financial information such as bank account or credit card or debit card or other payment instrument details; physical, physiological and mental health condition; sexual orientation; medical records and history; and biometric information.*” Any of the information received under the aforementioned categories by body corporate for processing, stored or processed under lawful contract or otherwise is also considered as SPDI.³⁹ The Metaverse platforms will certainly collect SPDI of its users.

The Data Protection Rules set out compliances for an entity (being a body corporate) located in India that collects, stores, processes, discloses or transfers SPDI of a user in India. These compliances include taking consent for the collection of SPDI, giving notice of the collection of SPDI to the user, publishing a privacy policy on its website, appointing a grievance officer to redress the grievances of the provider of the information and adopting reasonable security procedures and practices for the information, among other requirements.⁴⁰

At present, the compliances under the Data Protection Rules apply to Indian entities only. However, the IT Act can have extraterritorial jurisdiction, if certain nexus requirements to India are met. Therefore, non-Indian entities having adequate nexus to India, could be penalized for non-compliance with the Data Protection Rules.

B. Proposed Law

The Government of India has been working on a rights-based privacy and data protection legislation. The proposed law, currently titled the draft Data Protection Bill, 2021 (“**DPB**”), borrows several elements of the European Union’s General Data Protection Regulation (“**EU-GDPR**”).⁴¹

In contrast to the extant Data Protection Rules, the DPB is a horizontally applicable legislation, i.e., it is applicable to all entities processing personal data, irrespective of form of organization, and includes natural persons. Further, the DPB envisages a fiduciary relationship between a data subject and data controller vis-à-vis the former’s personal data. Resultantly, the DPB defines rights of a data subject (referred to as a “data principal” under the

³⁷ Rule 2(i), Data Protection Rules.

³⁸ Section 72A of the IT Act provides “Save as otherwise provided in this Act or any other law for the time being in force, any person including an intermediary who, while providing services under the terms of lawful contract, has secured access to any material containing personal information about another person, with the intent to cause or knowing that he is likely to cause wrongful loss or wrongful gain discloses, without the consent of the person concerned, or in breach of a lawful contract, such material to any other person, shall be punished with imprisonment for a term which may extend to three years, or with fine which may extend to five lakh rupees, or with both.”

³⁹ Rule 3, Data Protection Rules.

⁴⁰ Specifically, the privacy policy should include clear and easily accessible statements of its practices and policies; types of personal or sensitive personal data or information collected; purpose of collection and usage of such information; disclosures of the information collected to third parties; reasonable security practices and procedures adopted.

⁴¹ The Draft of the Data Protection Bill appended to the Report of the Joint Committee on Personal Data Protection Bill, 2019 dated December 16, 2021, available at: http://164.100.47.193/Isscommittee/Joint%20Committee%20on%20the%20Personal%20Data%20Protection%20Bill,%202019/17_Joint_Committee_on_the_Personal_Data_Protection_Bill_2019_1.pdf (Last visited on July 6, 2022).

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DPB), and corresponding obligations of a data controller (referred to as a “data fiduciary” - defined under the DPB as “any person, including a State, a company, a non-government organisation, juristic entity or any individual who alone or in conjunction with others determines the purpose and means of processing of personal data.”⁴²). Similar to the EU-GDPR, the DPB imposes limited obligations on data processors, who process data on behalf of other data fiduciaries. Lastly, the DPB proposes to set up an independent regulator, the Data Protection Authority (“DPA”) to establish additional standards, monitor compliance, and adjudicate on matters under the DPB.

i. Applicability of DPB

The DPB has extra-territorial applicability, and will apply to the processing of personal data by data fiduciaries and data processors present outside India, if such processing is in connection with: (a) any business carried on in India, or any systematic activity of offering goods or services to data principals within the territory of India; or (b) any activity which involves profiling⁴³ of data principals within the territory of India.⁴⁴

ii. Categories of Personal Data

The DPB categorizes data into four distinct categories. The first, is “personal data”,⁴⁵ which is akin to the notion of Personally Identifiable Information (“PII”) under the EU-GDPR, i.e., data about or relating to a natural person who is directly or indirectly identifiable through such data, and includes inferences drawn from such data. The second, is “sensitive personal data” (“SPD”), which is a subset of personal data, and is similar to the concept of SPDI under the extant Data Protection Rules, but goes a step further to include data such as genetic data, transgender status, intersex status, caste or tribe, and religious or political belief or affiliation. The Central Government retains the power to notify additional categories of data as constituting SPD. The third category of data is “critical personal data” (“CPD”), which constitutes of any personal data, which by reason of it being relevant to strategic interests of the State,⁴⁶ may be notified by the Central Government as “critical personal data”.

Lastly, the DPB also extends its applicability to “non-personal data” (“NPD”), i.e., all data that does not constitute personal data, and includes “anonymized personal data”. Similar to the EU-GDPR, the concept of anonymization under the DPB refers to a process of irreversible anonymization and is distinct from mere de-identification of personal data. While it is unclear whether NPD will continue to be retained within the scope of the DPB upon enactment, in its current form, the DPB enables the Central Government to seek mandatory sharing of NPD by data fiduciaries and data processors, in order to enable better targeting of delivery of services or formulation of evidence-based policies by the Central Government.⁴⁷

⁴² Clause 3(15), DPB.

⁴³ Clause 3(37) of DPB defines “profiling” as “any form of processing of personal data that analyses or predicts aspects concerning the behaviour, attributes or interests of a data principal”

⁴⁴ Clause 2A, DPB.

⁴⁵ Clause 3(33) of the DPB defines “personal data” as “data about or relating to a natural person who is directly or indirectly identifiable, having regard to any characteristic, trait, attribute or any other feature of the identity of such natural person, whether online or offline, or any combination of such features with any other information.”; Clause 3(41) of the DPB defines “sensitive personal data” as personal data which may reveal, or be related to, or constitute – (i) financial data; (ii) health data; (iii) official identifier; (iv) sex life; (v) sexual orientation; (vi) biometric data; (vii) genetic data; (viii) transgender status; (ix) intersex status; (x) caste or tribe; (xi) religious or political belief or affiliation; or (xii) any other data categorised as sensitive personal data under section 15;

⁴⁶ Clause 33, DPB.

⁴⁷ Clause 92(2), DPB.

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iii. Compliances under DPB

The DPB specifically provides that the data fiduciary is responsible for complying with all provisions of the DPB for processing data by itself or on its behalf.⁴⁸ Therefore, while the DPB imposes extensive compliances upon data fiduciaries, limited obligations apply to data processors namely, processing the personal data in accordance with the data processing agreement⁴⁹ and ensuring security safeguards⁵⁰. By contrast, a data fiduciary is required to *inter alia* comply with notice⁵¹ and consent requirements,⁵² data breach notification requirements⁵³, and putting in place privacy by design policy.⁵⁴ A snapshot of the obligations under DPB⁵⁵ is provided in our hotline here.

iv. Data Principal Rights

Aligned with international best practices, the DPB confers certain data principal rights on individuals. Data fiduciaries will need to ensure appropriate technical and organizational measures to enable the user i.e. the data principal to exercise these rights:

- Right to data portability⁵⁶: The data principal has the right to move personal data, from one platform or service to another, in a structured, commonly used and machine-readable format. This includes any data generated through the data principal's interactions with the service or platform, and any other profile on the data principal which the data fiduciary has otherwise obtained (for e.g., obtained through profiling by the data fiduciary or other third parties). Therefore, in order to comply with portability requests a data fiduciary will need to ensure that their systems, products, and devices are capable of isolating each data principal's personal data and porting such data when requested. It would also require industries to agree on interoperable data reporting formats and sharing standards. Currently, the DPB provides no guidance on the eventual implementation. However, the DPA once established, may issue binding Codes of Practice relating to the implementation of data porting requests.
- Right to confirmation and access⁵⁷: A data principal is entitled to access any information regarding the processing of their personal data.
- Right to correction and erasure⁵⁸: Data principals are entitled to correct their personal information on the platform or update their personal information. They may also make requests to erase their personal information.
- Right to be forgotten⁵⁹: Subject to an adjudicatory process prescribed under the DPB, a data principal has the right to be forgotten, i.e. a right to require permanent deletion of any personal data available with a data fiduciary. The right may be exercised by demonstrating that the continued disclosure of such data overrides the the right of the data fiduciary to retain, use and process such data.

48 Clause 10, DPB.

49 Clause 31, DPB.

50 Clause 24, DPB.

51 Clause 7, DPB.

52 Clause 11, DPB.

53 Clause 25, DPB.

54 Clause 22, DPB.

55 Proposed Indian Privacy Law Revamped: Light At The End Of The Tunnel?, December 17, 2021, Nishith Desai Associates. Available at: <https://www.nishithdesai.com/SectionCategory/33/Technology-Law-Analysis/12/60/TechnologyLawAnalysis/4988/1.html>

56 Clause 19, DPB.

57 Clause 17, DPB.

58 Clause 18, DPB.

59 Clause 20, DPB.

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C. Metaverse: Interface with Indian Data Laws

i. Treatment of Digital Avatars under the Law

An issue which may arise in the context of Metaverse is whether the user's digital Avatar will be protected as personal data. An 'Avatar' is the illustration of the user's character in the Metaverse. Given that these Avatars may indirectly identify the user, they may be considered to be an extension of the personality of the user itself, and therefore, the personal data of the user.

However, there may be attributes of the Avatar which may be protected as SPD, if such attributes are linked to biometric information of the user, e.g. digital fingerprints in a virtual world, that are linked to real-world biometric authentication on edge devices, or facial expressions of the Avatar which are generated by mapping real-time biometric information such as eye-tracking, pupil-dilation and other haptic inputs. In this regard, companies may need to be mindful of the fact that the DPB empowers the Government to prohibit processing of certain categories of biometric data.⁶⁰ Therefore, Metaverse entities will have to manage some extent of regulatory uncertainty vis-à-vis their Indian operations.

ii. Data Portability

If digital Avatars, and uniquely personal digital assets, are considered to be personal data or SPD, then data principal rights which relate to such personal data or SPD, would extend to such Avatars and digital assets. Porting digital Avatars and assets across Metaverses is likely to lead to challenges in terms of seamless, accurate and hi-fidelity porting of digital Avatars and related data. Similarly, in instances where digital assets and content is co-created by multiple users, it is unclear how the data porting across Metaverses can be attained from a technical and legal standpoint. Since multiple co-existing rights may subsist in such assets, conflicting permissions from multiple users may pose a challenge to portability.

iii. Anonymity and Harms

Anonymity of online communications and interactions has been one of the key developments in communications and interactive technologies following the advent of Web 2.0. Bad behaviour and uncivil discourse, including the perpetration of fake news, hate speech and trolling, have often been attributed to the affordance of anonymity online. Therefore, some believe that undoing online anonymity will lead to the creation of safe and inclusive online public spaces.

Governments across the world have started to question the need for absolute anonymity in online communications and interactions. For instance, in October 2020, the Governments of the "Five Eyes" intelligence jurisdictions⁶¹ together with Japan and India, issued a joint statement on "End-to-end Encryption and Public Safety."⁶² Following this approach, the Government of India issued the Information Technology (Intermediaries Guidelines and Digital Media Ethics Code) Rules, 2021 ("IL Rules") which require significant social media intermediaries⁶³ providing services in the nature of messaging (i.e. in platform communications) to enable the tracing of originators of any given message.⁶⁴

⁶⁰ Clause 93, DPB.

⁶¹ i.e., United States, United Kingdom, Australia, New Zealand and Canada.

⁶² See, US Department of Justice, Office of Public Affairs, "International Statement End-to-End Encryption and Public Safety", October 11, 2020; Available at: <https://www.justice.gov/opa/pr/international-statement-end-end-encryption-and-public-safety> (Last visited on July 6, 2021).

⁶³ Under the IL Rules a 'significant social media intermediary' means a "social media intermediary having number of registered users in India above such threshold as notified by the Central Government."

⁶⁴ Rule 4(2) of IL Rules.

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Given these developments, anonymity by default, will be a difficult proposition for the Metaverse. The focus for developers and consortiums launching their Metaverses, should instead be on preventing privacy harms rather than focussing on enabling absolute anonymity. Virtual identities and Avatars have been susceptible to identity thefts, phishing attacks, etc. Robust security of identity data and digital Avatars would therefore become a pre-requisite in the Metaverse.

iv. Balkanization of the Internet and Impact on Metaverse

The DPB proposes data residency requirements for certain categories of data, i.e. SPD and CPD. These would require Metaverse operators to necessarily store some data in physical servers within India. Given the global context and scope of most Metaverse platforms, jurisdiction-specific requirements on storage and processing of data, is likely to cause fragmentation in Metaverse experiences for users across jurisdictions.

v. Innovations in Privacy for the Metaverse

Most modern privacy regimes are pivoted around “consent” as the starting point of responsible data processing. However, neither a first-time nor experienced user of a Metaverse can fully appreciate and comprehend the consequence of data processing activities enabling their Metaverse experiences. The problem of “bounded rationality” is likely to cause most users to consent to processing of their data, without considering the long-term costs and risks of processing the high volumes of personal data generated by them in the Metaverse. Moreover, in a high-innovation sector like Metaverse, obtaining multiple and routine consents for incremental product features could lead to consent fatigue for Metaverse users.

A case could therefore be made, for a transitioning to a “privacy by design approach”, where developers in-build privacy enhancing features into the Metaverse architecture, to mitigate privacy harms which may arise from the user’s actions, or even from any lapses in their Metaverse protocols. Some of the innovations which are likely to benefit such an approach include blockchain-based zero-knowledge proofs, which do not require a user to disclose any personal data, for the purposes of verifying and authenticating their digital identity.⁶⁵ Similarly, hardware solutions, such as tokenized data storage on secure edge devices (such as AR/VR headsets) could be explored as a privacy safeguard.

Lastly, one of the conceptions of modern Metaverses is pivoted around decentralized ecosystems. Typically, such Metaverses are operated through DAOs which could enable users to democratically participate in the wider design and operational policies of the Metaverse through governance tokens. DAOs are digital organizations (not backed by any legal entity), have no central authority and are led by community of users who can be located across the globe.⁶⁶ Such Metaverses present a unique opportunity for shaping user-centric privacy policies.

vi. Metaverse and Larger Open Data Policies

Not only is the Metaverse expected to collect and process massive amounts of personal data, it is also going to be a source of larger NPD data sets. With the Government proposing mandatory NPD sharing for the purposes of better distribution of services, and evidence-based policy making, it will be interesting to evaluate if issues such as quality of experiences on Metaverse, and other platform level Metaverse policies, would qualify as adequate grounds for the Government to seek access to Metaverse-related NPD.

⁶⁵ Zero-knowledge proofs – a powerful addition to blockchain, available at: <https://blockheadtechnologies.com/zero-knowledge-proofs-a-powerful-addition-to-blockchain/> (Last visited on July 6, 2021).

⁶⁶ See <https://pragermetis.com/insights/metaverse-taxation/> (Last visited on July 5, 2022).

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Crucially, for Metaverses operating around a centralized model, NPD is likely to be a proprietary competitive differentiator vis-à-vis other Metaverses. Therefore, the impetus should ideally be on voluntary data sharing, which can play an instrumental role in enabling interoperable Metaverse experiences. Entities should ultimately be in control of identifying data sets relevant to enabling interconnected, interoperable and seamless Metaverse experiences.

4. Torts

Since instances in the Metaverse closely replicate the real world scenarios, there is a possibility of the user, through its avatar, committing certain civil wrongs such as nuisance, negligence, trespass, defamation, etc. From an illustrative perspective, in this section, we have limited the basic principles of the *tort of negligence* below.

The essential elements for the tort of negligence include “duty of care”, “breach of duty to take care” and “damages caused pursuant to the said breach”. The Metaverse would involve convergence between multiple kinds of products, services and technology. Hence, the final product or service available to a user would involve contributions from a wide range of entities, right from the original equipment manufacturers to software developers and numerous other service providers. The platforms may also be AI-driven, which would have a crucial role in shaping user experience on the platform.

A pertinent issue that arises with regard to users of the Metaverse, therefore, is the duty / standard of care expected from not only the platform, but the various users and stakeholders involved in the platform. The logical next step is the implication when such standards are not met and there is damage / harm caused. For e.g., if a user is exposed to a disturbing environment or simulation causing mental agony, it would first be required to be ascertained whether the platform or any component thereof had a duty of care, and the standard thereof. If there was indeed a duty of care and it was breached, what would be the liability of the respective stakeholders, including the platform for the supposedly negligent action?

The ingredients of the tort of negligence are as follows:

A. Duty to take care .

One of the essential conditions of liability for negligence is that the defendant owed a legal duty towards the plaintiff and that the defendant committed a breach of duty to take care or he failed to perform that duty.

B. Duty must be specifically towards the plaintiff

It is not sufficient that the defendant owed a general duty to take care. It must be established that the defendant owed a duty of care towards the plaintiff.

C. Consequent damage / harm to the plaintiff

The last essential requisite for the tort of negligence is that the damage caused to the plaintiff was the result of the breach of the duty. The harm may fall into following classes:

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- i. physical harm, i.e. harm to body⁶⁷
- ii. harm to reputation;
- iii. harm to property, i.e., land and buildings and rights and interests pertaining thereto, and his goods;⁶⁸
- iv. economic loss; and
- v. mental harm or nervous shock.

With the advent and growth of the Metaverse, AI could be an important tool deployed, and the Metaverse platform could automatically learn through machine learning techniques dependent on user behaviour data. Thus, there is a need for more clarity with regard to the law pertaining to ‘negligence’ and ‘reasonable standard / duty of care’. For instance, at present, there is a lack of uniform jurisprudence when it comes to “standard / duty of care” with regard to AI systems. In some jurisdictions, liability of AI is attributed basis the principle of “strict liability”, however issues pertaining to determining the actual creator / owner of the AI due to the extent of automation in the Metaverse, may become challenging.

It would also need to be evaluated whether the standards of strict liability can be applied at all times – which will in turn have significant financial consequences on the various stakeholders referred to above. Whether a particular entity is held liable by default would also have an impact on the rate of technology adoption.

5. Cyber security

With the advent of Metaverse, cyber security incidences are likely to grow exponentially, especially post implementation of quantum computing. Other than user data (including financial data recorded on blockchain), even the virtual properties will be subject to attack and theft. Stakeholders would need to ensure that they have adopted robust technologies and processes place to secure each aspect of the platform, transactions and data. Since the metaverses may be interoperable, the points of convergence between two or more technologies and platforms will need to be highly secure. If data breaches or system compromises are frequent, user trust could go down swiftly and significantly.

In most jurisdictions, there are laws with respect to cyber security incident reporting. Given that platforms will be available to users globally, such laws may also need to be complied with, depending on whether compliance is triggered based on presence of users, handling user data, location of platform infrastructure or other relevant factors.

⁶⁷ This may be caused by haptics equipment, or say, if a user injures themselves physically while using the Metaverse due to an incident on the Metaverse

⁶⁸ This would require an evaluation of property rights within the Metaverse vis-à-vis the physical world.

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In India, entities would be required to comply with the Information Technology (The Indian Computer Emergency Response Team and Manner of performing functions and duties) Rules, 2013 (“**Rules**”) and directions relating to information security practices, procedure, prevention, response and reporting of cyber incidents for Safe & Trusted Internet from April 28, 2022⁶⁹ issued by Computer Emergency Response Team (“**CERT-In**”) (“**Directions**”), under the Information Technology Act, 2000. CERT-In is the national agency with respect to cyber security measures. As stated before, the entities will have to evaluate applicability of Indian law, based on various factors.

The salient compliances with respect to cyber security under the Rules and the Directions in India are as follows:

- i) The list of cyber security incidents under Annexure I of the Directions must be mandatorily reported by a service provider, intermediary, data centre, body corporate and Government organisation (“Entities”). Any incident as stated in Annexure-I of the Directions and meeting the following criteria should be reported within the stipulated 6 hour time. Other mandatorily reportable incidents must be reported “as soon as possible”:
 - cyber incidents and cyber security incidents of severe nature (such as denial of service, distributed denial of service, intrusion, spread of computer contaminant including Ransomware) on any part of the public information infrastructure including backbone network infrastructure
 - Data Breaches or Data Leaks
 - large-scale or most frequent incidents such as intrusion into computer resource, websites etc.
 - cyber incidents impacting safety of human beings
- ii) All Entities must designate a point of contact (“**PoC**”) to interface with CERT-In. The information relating to the PoC has to be sent to CERT-In in the format specified in Annexure II to the Direction and updated from time to time.
- iii) All Entities are mandatorily required to enable logs of all their ICT systems and maintain them securely for a rolling period of 180 days. These should be provided to CERT-In along with reporting of any incident or when ordered / directed by CERT-In. Logs need not be stored in India so long as the obligation to produce logs to CERT-In is adhered to by Entities.
- iv) When CERT-In issues any order/directions to an Entity, such Entity must mandatorily take action or provide information or any such assistance to CERT-In. If the order/direction provide a format in which the information is required (up to and including near real-time), and a specified timeframe in which it is required, such directions must be complied with. Non-compliance will be treated as non-compliance with the Directions.
- v) Entities are required to connect to the Network Time Protocol (“**NTP**”) Server of National Informatics Centre (“**NIC**”) or National Physical Laboratory (“**NPL**”) or with NTP servers traceable to these NTP servers, for synchronisation of all their ICT systems clocks. Entities having ICT infrastructure spanning multiple geographies can use accurate and standard time source other than NPL and NIC, however they must ensure that their time source does not deviate from NPL and NIC. It is not mandatory to synchronise all ICT system clocks with the NPL and NIC servers, or in Indian Standard Time (“**IST**”). If there is any deviation between the system clocks of an Entity and the NPL and NIC servers, the Entity is required to maintain a record of such deviation and provide such information regarding the deviation to CERT-In at the time of reporting an incident.

⁶⁹ Available at: https://www.cert-in.org.in/PDF/CERT-In_Directions_70B_28.04.2022.pdf (Last visited on July 5, 2022).

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vi) Data Centres, Virtual Private Server (“VPS”) providers, Cloud Service providers and Virtual Private Network Service (“VPN Service”) providers, shall be required to register the following accurate information which must be maintained by them for a period of 5 years or longer duration as mandated by the law after any cancellation or withdrawal of the registration as the case may be:

- Validated names of subscribers/customers hiring the services
- Period of hire including dates
- IPs allotted to / being used by the members
- Email address and IP address and time stamp used at the time of registration / on-boarding
- Purpose for hiring services
- Validated address and contact numbers
- Ownership pattern of the subscribers / customers hiring services

vii) The virtual asset service providers, virtual asset exchange providers and custodian wallet providers (as defined by Ministry of Finance from time to time) must mandatorily maintain all information obtained as part of Know Your Customer (“KYC”) and records of financial transactions for a period of five years so as to ensure cyber security in the area of payments and financial markets for citizens while protecting their data, fundamental rights and economic freedom in view of the growth of virtual assets.

Importantly, as specified above, the Rules and the Directions require service providers, intermediaries, body corporates, etc. to report certain kinds of cyber incidents and cyber security incidents.⁷⁰ The list of incidents includes attacks on IoT, incidents affecting digital payment systems unauthorized access to social media accounts and incidents related to AI and machine learning, all of which could be specifically relevant for Metaverse platforms. Incident reporting and compliance requirements also exist in other jurisdictions, and given that platforms will be available to users globally, such laws may also need to be complied with, depending on whether compliance is triggered based on presence of users, handling user data, location of platform infrastructure or other relevant factors.

Platforms and other entities in the ecosystem should also contractually require their service providers / other contracting entities to have adequate and standardizes security measures in place. This would ensure that security vulnerabilities at one entity’s end does not compromise the security of another entity in the environment, or the platform itself.

⁷⁰ Reporting requirements for entities have existed since 2013 under the Information Technology (The Indian Computer Emergency Response Team and Manner of performing functions and duties) Rules, 2013. Available at: https://www.meity.gov.in/writereaddata/files/G_S_R%2020%20%28E%292_0.pdf (Last visited on July 11, 2022).

6. Taxing Metaverse

As discussed above, Metaverse enables a person to do almost everything (buying / leasing digital land, shopping in virtual malls, advertising, hosting events, purchasing digital art etc.) that can be done in the real world. While Metaverse is essentially a virtual universe, the key question which arises from a tax perspective is that whether income from transactions in Metaverse will be taxable in the real world.

Metaverse encompasses and broadens the horizon of the digital economy (or what is known as Web 2.0). Taxation of digital economy or Web 2.0 has been a challenge globally, with the efforts of the global tax community (including India) formalizing into the two-pillar solution proposed by the Organization for Economic Co-operation and Development (“OECD”).⁷¹ Prior to the global agreement, India introduced the equalization levy (“EL”) and significant economic presence (“SEP”) provisions for taxing digital transactions. We have briefly discussed the impact of these provisions to transactions in Metaverse below.

From an Indian perspective, in relation to Web 2.0, several issues persist with respect to taxation of digital transactions like characterization of income, determination of taxable nexus etc. and over the years jurisprudence on such issues has evolved. As Metaverse becomes the reality, it is likely to give rise to several unique issues pertaining to taxation of transactions in Metaverse.

Further, while tax authorities globally (including India) have made progress in considering and issuing guidance on the taxation of cryptocurrencies, NFT transactions, there is no direct guidance on taxation of transactions in the Metaverse. In absence of specific guidance, the same rules for taxation of cryptocurrency / NFT transactions may be applicable on transactions in the Metaverse.

Thus, taxation of transactions in the Metaverse are likely to raise new challenges at the intersection of issues with respect to taxation of digital transactions and taxation of virtual digital assets (“VDAs”). We have detailed below the tax issues arising in transactions relating to the Metaverse.

A. Taxation under the Income-tax Act, 1961 (“ITA”)

Income tax in India is levied under the ITA. Under the ITA, the Indian residents are taxed on their worldwide income while nonresidents are taxed only on income arising from sources in India. Thus, when an Indian resident company or individual is engaging in any business in the Metaverse, the global income (including the income from Metaverse) of such company or individual will be subject to tax in India.

Taxation of non-residents is governed by the provisions of the ITA or the relevant tax treaty, whichever is more beneficial, subject to satisfaction of few conditions.

⁷¹ OECD/ G20 Base Erosion and Profit Shifting Project: Statement on a Two-Pillar Solution to Address the Tax Challenges Arising from the Digitalisation of the Economy. Available at: <https://www.oecd.org/tax/beps/statement-on-a-two-pillar-solution-to-address-the-tax-challenges-arising-from-the-digitalisation-of-the-economy-october-2021.pdf> (Last visited on July 5, 2022).

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We have briefly summarized the provisions which may be relevant below:

i. Significant economic presence

Non-residents are taxable in India if they have a business connection in India. The concept of significant economic presence (“**SEP**”) is an expansion of “business connection” in order to deem the income derived by any non-resident without a physical presence in India to be accruing or arising in India. However, SEP should not be applicable if the non-resident is eligible to claim benefit of a tax treaty entered into by India, if such non-resident does not have a permanent establishment (“**PE**”) in India, because business income in a source jurisdiction cannot be taxed without presence of PE. SEP thresholds were specified⁷² in financial year 2020-21. As per the prescribed thresholds, any non-resident who:

- engages in transaction or transactions with any person in India if the aggregate of payment for such transaction exceeds INR 2 crores (approximately USD 2,69,000), or
- systematically and continuously solicits business activities or engages in interaction with at least 3 lakh users

will be considered to have SEP in India, and in turn, a business connection in India. In case SEP created, the income attributable to SEP would be subject to tax in India at rate of 40% (plus applicable surcharge and cess).

ii. Equalization levy

The Finance Act, 2020 significantly expanded the EL targeting non-resident e-commerce operators (“**E-com EL**”). The E-com EL provisions are widely worded and were introduced directly under the Finance Act, 2020 without any prior Parliamentary discussion or debate.

⁷² Notification No. 41/2021 – Income Tax, Central Board of Direct Taxes, 3rd May 2021.

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The table below summarizes the E-com EL provisions:

S. No.	Particulars	Details
1.	Scope (Applicability)	Applies to non-resident 'e-commerce operator', on consideration received or receivable from 'e-commerce supply or service' made or provided or facilitated by it to: - A person resident in India; or - A non-resident in 'specified circumstances'; or - A person who buys such goods or services or both using an internet protocol address located in India.⁷³
2.	E-commerce operator	A non-resident who owns, operates or manages digital or electronic facility or platform for online sale of goods or online provision of services or both. ⁷⁴
3.	E-commerce supply or service	- online sale of goods owned by the e-commerce operator; or - online provision of services provided by the e-commerce operator; or - online sale of goods or provision of services or both, facilitated by the e-commerce operator; or - any combination of activities listed in clause (i), (ii) or clause (iii)⁷⁵.
4.	Tax Burden	Onus of paying the E-commerce EL falls on the 'e-commerce operator'
5.	Rate	E-commerce EL is applicable at the rate of 2% of the entire "consideration received/ receivable by the e-commerce operator" from e-commerce supply or services made or provided or facilitated by it. ⁷⁶
6.	Tax base	Scope of "consideration received or receivable from e-commerce supply or service" is defined⁷⁷ as: - consideration for the sale of goods irrespective of whether the e-commerce operator owns the goods, so however that it shall not include consideration for the sale of such goods which are owned by a person resident in India or by a PE in India of a person non-resident in India; - consideration for the provision of services irrespective of whether service is provided or facilitated by the e-commerce operator, so however that it shall not include consideration for the provision of services which are provided by a person resident in India or by a PE in India of a person non-resident in India, if the provision of such services is effectively connected with such permanent establishment. A distinction has been created between Indian and foreign sellers of goods or services, for the purposes of tax base determination. If the goods sold / services provided on the e-commerce operator's platform are by Indian residents, the same should not fall within the scope of E-commerce EL.
7.	Exclusions	- E-commerce operator has a PE in India and the supply of goods / services is effectively connected to such PE, or - E-commerce supply or services is subject to the advertisement EL applicable at rate of 6%, or - Gross annual consideration is less than INR 20 million (approx. USD 265,000),⁷⁸ or - Transactions on which fee for technical services / royalty is payable as per the ITA read with the applicable tax treaty.⁷⁹
8.	Exemption from Income-tax	Income arising from any 'e-commerce supply or services' (as defined above) made or provided or facilitated on or after April 1, 2020, is exempt from income tax under the ITA. ⁸⁰

73 Section 165A(1) of the Finance Act, 2016

74 Section 164(ca) of the Finance Act, 2016.

75 Section 164(cb) of the Finance Act, 2016.

76 Section 165A(1) of the Finance Act, 2016.

77 Section 165A(3)(b) of the Finance Act, 2016.

78 Section 165A(2) of the Finance Act, 2016

79 Proviso to section 163(3) of the Finance Act, 2016.

80 Section 10(50) of the ITA.

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iii. Taxation of VDAs

The ITA did not contain any provisions for taxation of VDAs until the Finance Act, 2022 (coming into effect from April 1, 2022). The Finance Act, 2022 has introduced the much-awaited taxation regime for VDAs in India.

- *Definition of VDAs:* The ITA defines VDAs in an exhaustive manner to *inter-alia* include any information or code or number or token generated through cryptographic means or otherwise capable of being transferred, stored or traded electronically. Recently, the government has clarified that gift card or vouchers, mileage or reward points given without direct monetary consideration, subscription to website / applications etc. are not included in the scope of VDA.⁸¹
- Further, NFTs have specifically been included in the definition of VDAs as a separate category. The government has clarified that a token which qualifies as a VDA is considered as an NFT. However, an NFT whose transfer results in transfer of ownership of underlying tangible asset and the transfer of ownership of such underlying tangible asset is legally enforceable is excluded from the scope of NFT.⁸²
- *Taxation of income from VDAs:* The ITA seek to tax crypto transactions akin to gambling transactions at rate of 30% without allowing any deductions (other than the cost of acquisition, if any) or set-off or carry forward of losses from VDAs (section 115BBH). The Finance Ministry has also clarified that infrastructure costs incurred in mining cryptocurrencies is a capital expenditure and will not be treated as cost of acquisition.
- *Withholding tax:* With effect from July 1, 2022, the ITA also obligates the person responsible for paying income from transfer of VDAs to a resident to withhold tax at rate of 1% on such payment. The provision is wide enough to obligate even non – residents to withhold taxes when paying consideration to Indian residents.
- *Gift tax:* The ITA also extends the application of the infamous gift tax to transaction in VDAs. By virtue of the gift tax, receipt of VDAs in excess of INR 50,000 without consideration or for a value less than its fair market value may be considered to be income from other sources in the hands of the recipient.

As discussed above, there is no specific guidance on taxation of transactions in the Metaverse. The applicability of the provisions stated above will have to be evaluated basis the nature of each transaction. For example, in case an individual resident is purchasing e-apparels, virtual land etc. in the Metaverse, applicability of E-com EL and SEP provisions will have to be examined. SEP provisions may be triggered only when the Metaverse platform is based out of a country with which India does not have a tax treaty and the SEP thresholds are breached. E-com EL may be applicable at rate of 2% on the consideration paid by Indian resident for purchase of e-articles in the Metaverse. Similarly, in case where an Indian resident is participating in an event hosted in the Metaverse or entering the Metaverse, SEP may be triggered in case the Metaverse platform is considered to be systematically and continuously soliciting business or engaging with users in India. In case where the Metaverse platform charges a fee on such events, E-com EL provisions may also be applicable.

Income arising from transactions involving VDAs in the Metaverse may be subject to tax at rate of 30% under the ITA. However, in case of non-residents, it may be possible to argue that the 30% tax on income may not be applicable in absence of PE in India. Further, Metaverse platform may be under an obligation to withhold tax at rate of 1% on payment of consideration for transfer of VDA by Indian sellers on their

⁸¹ Notification SO 2958(E) dated June 30, 2022.

⁸² Notification SO 2959(E) dated June 30, 2022.

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platform. There may be additional challenges in relation to Metaverse platforms being run by DAOs whose legal and tax status remains unclear globally.⁸³

Further, there may be other fundamental questions which may arise in the context of taxing Metaverse. For example, whether tax authorities can be said to have jurisdiction over transactions in the Metaverse which is essentially a virtual world. Further, how will countries allocate taxing rights over transactions in the Metaverse, whether *Avatar* of an individual can be considered to be a taxable unit, whether DAOs can be taxed, manner of enforcement of taxes on Metaverse platforms, discovery of transactions in Metaverse universe etc. As the Metaverse universe develops, it is likely that the tax regime around the Metaverse will also evolve. Currently, even in the absence of guidance, participants and service providers in the Metaverse universe should determine tax implications on transactions in the Metaverse to avoid adverse consequences in future.

B. Goods and Service Tax

Goods and Services Tax (“GST”) was introduced in India with effect from July 1, 2017. The Central GST (“CGST”) and State GST (“SGST”) are applicable simultaneously on a common tax base on every supply of goods and services, except those that are exempted under GST or outside the purview of GST, whereas Integrated GST (“IGST”) is applicable on inter-state and cross border supply of goods and services. All GST legislations share the same basic features of law such as chargeability, definition of taxable event and taxable person, classification and valuation of goods and services.

Section 7 of the CGST provides the scope of supply includes *inter-alia* all forms of supply of goods or services or both made or agreed to be made for a consideration by a person in the course or furtherance of business. Taxable supplies can be divided into *intra-state supplies* and *inter-state supplies*. Section 8 of the IGST Act defines intra-state supply as any supply where the location of the supplier and the place of supply are in the same State or Union Territory in India. Whereas, inter-state supply refers to supply of goods or services when the location of supplier and place of supply are in different states in India or one of these is outside India.⁸⁴ Thus, determination of whether a supply is an intra-state or inter-state supply depends on (i) the location of the supplier of service and (ii) place of supply. In order for GST to be applicable either the location of supplier of service or place of supply should be in India. Section 2(15) of the IGST Act defines ‘location of the supplier of services’ and references it either to (i) registered location of such business or (ii) location of fixed establishment from where supply is made or (iii) location of the establishment most directly concerned with the provision of the supply or (iv) the location of the usual place of residence of the supplier.

⁸³ In July 2021, Wyoming became the first US state to afford legal entity status to a DAO; Available at: https://sos.wyo.gov/Business/Docs/DAOs_FAQs.pdf (Last visited on July 5, 2022).

⁸⁴ Section 8 of the IGST Act.

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Section 12 of the IGST Act provides that where the location of supplier and recipient of service⁸⁵ is in India, the place of supply of services:

- i) Made to a registered person shall be the location of such person;
- ii) Made to any person other than a registered person shall be:
 - the location of the recipient where the address on record exists; and
 - the location of the supplier of services in other cases

Section 12 also provides contains certain exceptions to the above general rule. For example, the place of supply directly in relation to immovable property or by way of accommodation in any immovable property etc. is the location of the immovable property. Similarly, the place of supply of services provided by way of admission to a cultural, artistic, sporting, scientific, educational, entertainment event etc. is the place where such event is actually held.

Like income-tax, there is no clarity on applicability of GST on transactions in the Metaverse. Recently, popular online Metaverse platform, Second Life, announced that it would charge US users local sales taxes on in-Metaverse purchases⁸⁶ in light of the US Supreme Court decision in case of *South Dakota vs Wayfair Inc.*⁸⁷ Recently, the German Federal Tax Court declared that no VAT should be applicable on renting of virtual land.⁸⁸

From an Indian perspective, there may be several nuances on applicability of GST on transactions in Metaverse. The place of supply for events or transactions in relation to virtual land in the Metaverse may be the Metaverse itself. In such a case, it may be possible to argue that GST is not applicable on such transactions as the Indian GST law does not recognize the virtual world. Further, in cases where Metaverse platforms being run by DAOs, challenges may arise in determination of supplier of services. In addition to above, another issue in the Metaverse world will be with respect to classification of transactions as goods or services. The CGST Act defines goods in a broad manner to *inter-alia* mean every kind of movable property other than money and securities.⁸⁹ Further, services are defined to mean anything other than goods. While a variety of transactions may take place in the Metaverse, classification of each transaction as a good or service will be important from a GST perspective. News reports suggest that the Indian government is working on characterization of crypto-assets for the GST purpose.⁹⁰

⁸⁵ Section 2(14) of the IGST Act defines 'location of the recipient of services' as:
 where a supply is received at a place of business for which the registration has been obtained, the location of such place of business;
 where a supply is received at a place other than the place of business for which registration has been obtained (a fixed establishment elsewhere), the location of such fixed establishment;
 where a supply is received at more than one establishment, whether the place of business or fixed establishment, the location of the establishment most directly concerned with the receipt of the supply; and
 in absence of such places, the location of the usual place of residence of the recipient

⁸⁶ See <https://www.indiatimes.com/technology/news/metaverse-taxes-like-real-world-563454.html> (Last visited on July 5, 2022).

⁸⁷ In this case, the USA Supreme Court held that states could charge sales tax even for products sold by online companies without any physical presence in that state.

⁸⁸ See <https://www.cms-lawnow.com/ealerts/2022/04/german-court-ruling-declares-no-vat-when-renting-virtual-land> (Last visited on July 5, 2022).

⁸⁹ Section 2(52) of CGST Act.

⁹⁰ See <https://economictimes.indiatimes.com/news/economy/policy/govt-working-on-classification-of-cryptocurrency-under-gst-law/articleshow/90333798.cms> (Last visited on July 5, 2022).

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The GST officials are analyzing whether crypto-assets can be characterized as goods or services or actionable claims. In case crypto-assets are characterized as goods or services, the reports suggest that GST may be applicable on the entire transaction value at a rate which could be within range of 0.1–1%.

Further, the report also suggests that few GST officers are of the view that crypto-assets, by nature, are similar to lottery, casinos, betting, gambling, horse racing. In case where crypto-assets are considered to be actionable claims similar to betting, lottery or gambling, GST may be applicable on the entire transaction value at 28%. Metaverse platforms which are also involved in crypto-assets should keep an eye out for such clarifications and examine the impact of such clarifications on their platform.

Conclusion

The internet, in its infancy, had very limited use cases – restricted largely to text communication within a limited group. Gradually, with wider adoption and accompanying technological advances (not only with respect to the internet but information and communications technology generally), the internet began to be used not only for e-mails, but also for music sharing, e-commerce, and even streaming live broadcasts. The internet has even become a means of sharing virtual reality experiences, including those within the ambit of the Metaverse.

This led to an increasing list of legal questions which arose with respect to internet regulation. For e.g., the ability to share multimedia on the internet sparked a debate on how best to protect intellectual property. Similarly, as people began to use internet banking, all stakeholders, including banks, mobile platforms, etc. had to adopt adequate security measures to protect users from financial frauds and other financial cybercrimes. There are still ongoing debates on wider legal issues such as jurisdiction, content regulation and privacy.

The Metaverse is, similarly, a boundless phenomenon like the internet. Hence, it is likely that the Metaverse will also follow a similar path, when it comes to the development of technology, and consequently the legal issues surrounding this space. For instance, an increasing amount of sensitive data might be stored by platforms regarding individual behaviour on the Metaverse – which would be the gargantuan cousin of the internet search history of a user. Similarly, buying property on the Metaverse could very well lead to questions regarding succession and inheritance. It is but natural that the law will have a hard time keeping up with the evolving technology. While platforms are burgeoning in this space, they should ensure that principles of security are enshrined in their technologies by design. For example, platforms could introduce tools or default features which get activated for maintaining personal boundaries between the avatars of the platform users.

Thus, while platform operators continue to shape user experiences, it will be interesting to see how global legal jurisprudence unfolds. Since the Metaverse mirrors the real world, the sense of belonging and working together is just as important when we live in the virtual space.

As people can travel to different countries and transport their belongings with ease, users in the Metaverse are likely to seek a similar interoperability. This implies that many Metaverses in future can be interoperable enabling users to use the same profile and share data across various platforms. However, the approach should be to make the Metaverse a safe and trusted space while ensuring that the development of technology is not unnecessarily burdened. Hence, on one hand platform operators and allied stakeholders could move towards self-regulation, such that identified concerns can be addressed at the architectural level itself. This would also require strong platform governance principles which are formulated with user interests in mind and are aimed at keeping mala fide actors at bay.

On the other hand, regulators should also adopt an open and consultative approach where stakeholders' views are encouraged and meaningfully considered. This is especially important since the space is highly dynamic and conventional positions on legal, policy or hastened ad hoc solutions may not stand the test of time.

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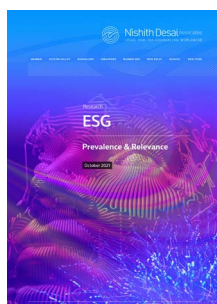
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LEGAL AND TAX COUNSELING WORLDWIDE

MUMBAI

93 B, Mittal Court, Nariman Point
Mumbai 400 021, India
Tel +91 22 6669 5000

SILICON VALLEY

220 S California Ave., Suite 201
Palo Alto, California 94306, USA
Tel +1 650 325 7100

BANGALORE

Prestige Loka, G01, 7/1 Brunton Rd
Bangalore 560 025, India
Tel +91 80 6693 5000

SINGAPORE

Level 24, CapitaGreen
138 Market St
Singapore 048 946
Tel +65 6550 9855

NEW DELHI

13-H, Hansalaya Building, 15
Barakhamba Road, Connaught Place
New Delhi 110 001, India
Tel +91 11 4906 5000

MUNICH / AMSTERDAM

Maximilianstraße 13
80539 Munich, Germany
Tel +49 89 203 006 268

NEW YORK

1185 6th Avenue, Suite 326
New York, NY 10036, USA
Tel +1 212 464 7050

GIFT CITY

408, 4th Floor, Pragya Towers
GIFT City, Gandhinagar
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